Supreme Court, U.S.
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IN THE

Supreme Court Of The United States

OCTOBER TERM, 1997

SOFTEL, INC.,

Petitioner,

– v. –

DRAGON MEDICAL AND SCIENTIFIC COMMINCATIONS, INC.; DRAGON GROUP LTD., also known as Dragon Medical and Scientific Communications, Ltd.; JOHN R. DARSEE, H. EUGENE HODGE, NINA ROMANOFF,

Respondents.

ON PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE SECOND CIRCUIT

APPENDIX TO PETITION FOR A WRIT OF CERTIORARI

CHARLA R. BIKMAN
Counsel for Petitioner
25 Maple Lane
East Hampton, N.Y. 11937
(516) 324-1306

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UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

SOFTEL, INC.,

Plaintiff,

-against-

DRAGON MEDICAL AND SCIENTIFIC COMMUNICATIONS, INC., DRAGON GROUP LTD., a/k/a DRAGON MEDICAL AND SCIENTIFIC COMMUNICATIONS LTD., JOHN R. DARSEE, H. EUGENE-HODGE, and NINA ROMANOFF,

Defendants.

MEMORANDUM AND ORDER

87 Civ. 0167 (JMC)

CANNELLA, D.J.:

After a bench trial on plaintiff's claims, the Court finds in favor of plaintiff with respect to its first and fifth claims for relief stated in the Amended Complaint to the extent these claims are based on the Hairy Cell Roche and Low Back Pain programs. The Court further finds that plaintiff is entitled to recover punitive damages with respect to its fifth claim for relief. Plaintiff's claim for attorney's fees, statutory damages and punitive damages with respect to its claim under its first claim for relief is denied. Plaintiff's second, third, fourth and sixth claims for relief are dismissed. Plaintiff's motion for further discovery with respect to the programs Advanced Cardiology Lab, Expert Consultations, Unasyn Oral Followup and Benign Prostatic Hypertrophy is denied

BACKGROUND

This action was tried by the Court without a jury on April 23, 1991 through May 9, 1991. Trial of the action was bifurcated and the instant trial was solely on the issues of liability and intent. Having heard and carefully considered all of the- evidence in this matter, the Court makes the following findings of fact and conclusions of law pursuant to Rule 52(a) of the Federal Rules of Civil Procedure.

FINDINGS OF FACT

The Parties

1. Plaintiff, Softel, Inc. ["Softel"] is a New Hampshire corporation engaged in the business of developing and selling

computer graphics products to users of IBM compatible computers. Paul Fiondella is the president and sole shareholder of the corporation.

2. Defendant Dragon Medical and Scientific Communications, Inc. ["Dragon") is a New Jersey corporation engaged in the business of designing communications programs to present medical and scientific information. The programs are typically designed for pharmaceutical companies who use them to familiarize physicians with their products.

3.Dragon Group Ltd. a/k/a Dragon Medical and Scientific Communications Ltd. ("Dragon-U.K.") is a holding company based in London, England and has majority control of Dragon. The Court denied plaintiff's motion to add Dragon-U.K. to the action, by Memorandum and Order dated April 6, 1988. See Softel v. Dragon, 87 Civ. 0167 (JMC) (S.D.N.Y. Apr. 6, 1988).

4. Defendant H. Eugene Hodge founded Dragon and is its president and a shareholder.

5. Defendant Nina Romanoff is a Dragon employee who produces the film and videotape used in the computer programs.

6. Defendant John R. Darsee is a medical writer for Dragon and the director of its interactive department.

7. At the conclusion of plaintiff's case, the Court granted defendants' motion for judgment as a matter of law under Rule 50(a) of the Federal Rules of Civil Procedure with respect to defendants Hodge and Romanoff, but denied the motion with respect to defendant Darsee.

Nature of Computer Software

8. Plaintiff wrote computer code for computer programs produced by Dragon. Plaintiff now asserts claims under federal copyright law, the Lanham Act and state law based on defendants' alleged improper use of plaintiff's code in subsequent interactive programs.

9. The programs in issue are interactive programs designed to operate on personal computers. In an interactive program the user controls the direction of the computer program. A personal computer ["PC") consists of both hardware and software. The hardware includes the central processing unit, which controls the computer's functions; the internal memory; input devices such as a keyboard, mouse or touchscreen; output devices, such as a display screen and printer; and storage devices such as hard and floppy

disc drives. See Lotus Dev. Corp. V. Paperback Software Int'l, 740 F. Supp. 37, 43 (D. Mass. 1990).

10. Software includes computer programs. There are numerous computer programming languages. Computers operate by executing instructions composed of binary digits of "zeros" and "ones". A sequence of binary instructions is known as "machine language" or "object code." Computer programmers, however, generally write programs in "source code" or "assembly language" in which they replace binary digits with meaningful letters. A program written in source code must also be used with another program, called a "compiler" or "interpreter," which translates the source code into binary instructions which the computer can understand. See Daniel J. Fetterman, The Scope Of Copyright Protection for Computer Software: Exploring The Idea/Expression Dichotomy in Copyright Law, Symposium Number 36, 1, 7-8 (1990) (hereinafter Scope of Copyright Protection]. Similarly, assembly language must be translated into machine language through the use of an "assembler" program. The compiling or assembling process results in "object code" which can be used as a library or "object module." See Lotus, 740 F. Supp. at 44.

11. "Linking" is the process of combining all of the parts of the computer program into the "executable" code which runs the program.

12. Data is a collection of information, which is used by the computer program. It is generally formatted into files, which are stored on either the hard disc of the PC or on a floppy diskette. Data can include text and pictures.

13. Paint-and-draw computer programs enable the user to create graphic images on a computer screen. In this case, Dragon used paint-and-draw computer programs to create graphic images.

14. Graphic images drawn with a computer paint-and-draw program can be stored as data and used in another computer program, if that computer program has the ability to retrieve and display the images.

Fiondella's Development of Videogram

15. In January 1983, Fiondella developed a computer graphics program for Softel known as Videogram 1.0. The paint and-draw program was developed for use on a PC that was equipped with a Plantronics board. A Plantronics board is a color graphics card which expanded the range of colors on a PC from four to sixteen.

16. Videogram 1.0 allowed the user to create graphic images using a keyboard as the input device. The user could store the image in the computer's memory for later use.

17. In 1983, Fiondella began working on a new product, called Videogram 2.0, which enabled the user to create graphic images using a pen and tablet as the input device. Videogram 2.0 did not permit the user to incorporate images drawn with it into software it was writing. Softel later produced a utility program that performed this function.

18. Plaintiff obtained a Certificate of Registration of Copyright for Videogram 2.0, No. TX 2-045-304 on April 29, 1983. This copyright is not in issue.

19. In 1984, Fiondella began working on Videogram 3.0, an updated version of Videogram 2.0, to take advantage of IBM's Enhanced Graphics Adaptor ("EGA card"], which had greater capabilities than the Plantronics board. Softel released Videogram 3.0 in the Fall of 1985.

Dragon's Initial Contacts with Softel

20. In 1984, Pfizer Laboratories ["Pfizer") hired Dragon to produce a program which later became known as Heartlab. The program was based on the results of recent coronary research.

21. In November 1984, Darsee learned of the Videogram product in an IBM catalogue. He called Fiondella to find out whether Darsee could create bar charts using Videogram. Fiondella recommended that Darsee purchase Videogram 2.0. Darsee purchased Videogram 2.0, but was unable to obtain a Plantronics graphic card which was needed to operate Videogram 2.0. Softel sold Darsee a Plantronics card and Fiondella delivered it to Darsee in December 1984 at Dragon's place of business.

22. Fiondella delivered the Plantronics card personally in order to determine whether there were any business opportunities for his company at Dragon. In particular, he thought that Dragon might be interested in acting as a distributor for Softel products.

23. Fiondella and Darsee dispute the substance of their conversation during their initial meeting. Fiondella testified that Darsee told him that Dragon expected to produce a series of interactive videodisc projects. Fiondella stated that he informed Darsee that Softel could create an "authoring language" that would enable Dragon to produce interactive computer programs simply by preparing graphic and text files, and any videodisc presentations.

He told Darsee that the authoring language would be comprised of simple English language words in a text file. He further testified that he explained to Darsee that the advantage of an authoring language was that it could be used in subsequent projects without re-writing the computer code. According to Fiondella, Darsee showed great interest in his suggestions and the parties discussed forming a joint venture to market such an authoring language. Darsee denied discussing whether Dragon would be interested in Softel's production of an authoring language or the formation of any joint venture.

24. The Court finds Fiondella's testimony on this issue credible. Fiondella was an aggressive small businessman who was actively looking for business opportunities for his company Softel. It is not surprising that upon learning the Dragon had been hired to produce several interactive projects, he told Darsee that he could write computer code in a manner that would make it easier for Dragon to produce the interactive programs. This is the first time that Fiondella met Darsee and it is clear that he was interested in marketing his capabilities in the hope that Dragon would hire him.

25. Darsee asked Fiondella to produce a simulation of a beating heart for inclusion in the Heartlab project.

The Azactam Program

26. In January 1985, E.R. Squibb & Sons, Inc. hired Dragon to create an interactive videotape program to train its pharmaceutical sales representatives about a new antibiotic called Azactam. The program became known as Azactam.

27. Chris Bazelgette, an employee of Dragon U.K., wrote the computer code for the program pursuant to Darsee's instructions. Since Dragon intended to use graphic images created with Videogram 2.0 in Azactam, Dragon hired Fiondella to write code that would display graphic images created by Videogram in Azactam I (the "image retrieval routines"].

28. Fiondella agreed to write the code, but he did not provide Dragon with the source code for retrieving and displaying Videogram created graphic images. Instead, he insisted that Bazelgette provide him with Bazelgette's source code. Fiondella then integrated the two codes to produce the "executable"--the code in its final form.

29. Bazelgette's source code shows the use of external command files and text files. Fiondella asserts that it was his decision to use external command files and text files in the Azactam

project, and not Darsee's or Bazelgette's. Fiondella's claim is wholly unsupported. There is no basis for inferring that Darsee instructed Bazelgette how to write the computer code based on an informal conversation he had with Fiondella over a year ago. Rather, the evidence shows that despite his initial conversation with Fiondella, Darsee was interested in Fiondella's work and ideas for one limited purpose--to enable Dragon to retrieve and display Videogram created images.

30. Softel charged Dragon a fee for his services in writing the code to retrieve the Videogram created images which was fully paid.

31. Fiondella embedded a copyright notice in Softel's portion of the Azactam source code and in the executable delivered to Dragon.

The Melanoma Program

32. In October 1984, before Dragon became acquainted with the Videogram program, Dragon and Roche Laboratories ("Roche"] tentatively agreed that Dragon would develop at least three videodisc programs called Melanoma, Kaposi Sarcoma ("Kaposi"] and Hairy Cell Leukemia.

33. Darsee prepared a proposal containing a broad outline for the videodisc series and submitted it to Roche on November 15, 1984 (the "November 15 proposal"]. The proposed program simulated a doctor's work-up of a patient suffering from a suspected cancer. The proposal suggested that the physician user be able to control the course of the program with a touchscreen, rather than utilize a rigid predetermined structure. Darsee suggested that the program comprise several levels of information which the physician-user could travel between. He also planned to place different categories of information on each level.

34. Roche approved Dragon's proposal in December 1984.

35. Darsee then met with Dr. Kirkwood, the medical consultant on the project. After speaking with Dr. Kirkwood, he began preparing a detailed design document for the program [the "Melanoma Design Document"].

36. The Melanoma Design Document explains that the program consists of a hierarchical series of menus from which the physician-user can make simulated medical decisions in the workup of one of four patients. The Melanoma Design Document provides an example of the program flow and drawings of the proposed menus. First, after selecting a patient, the user is presented with a

touchscreen menu entitled "Hospital Rounds" which contains categories relating to the evaluation of the patient such as history, physical examination, x-rays, and other diagnostic choices. If "history" is selected, then the history sub-menu is generated, which contains categories relating to the patient's past, present, and family history, as well as other categories concerning a patient's background. A video segment or text screen discusses the selected topic. The user then returns to the history sub-menu to make another choice, or the user may return to the Hospital Rounds menu to make another selection.

37. Darsee completed the Melanoma Design Document on March 4, 1985, and sent it to Roche for its approval on this date. Roche approved the melanoma Design Document on or about March 10-12. Fiondella never saw the Melanoma Design Document while Darsee was preparing it and he did not help Darsee write the document.

38. Fiondella claims that it was his idea to structure the program using hierarchical menus. In support of his assertion, he testified that during the initial production meeting with regard to the Melanoma project he suggested that the program use hierarchical menus and external files. He further testified that after the production meeting he spoke to Darsee in greater detail about the design of menus and choices. Fiondella also testified that Hugh Osborne, a videodisc consultant was present at the meeting and that he also made suggestions concerning the structure of the program. Thus, Fiondella postulates that the production meeting occurred before Darsee submitted the Melanoma Design Document to Roche and that Darsee adopted Fiondella's idea to design the program using a hierarchical system of menus.

39. There is insufficient evidence to support Fiondella's claim that it was Fiondella's idea to use a system of menus and choices in the Melanoma Design Document and not Darsee's. It is undisputed that Darsee prepared the initial November 15 proposal. Both the preliminary proposal and the Melanoma Design Document describe the conceptual framework of the program as comprising several levels. In both proposals, the user controls the flow of the program and has the ability to move from one level to another. The main difference between the two proposals is that the Melanoma Design Document is much more detailed than the original proposal and it contains the substantive medical information in each choice on each menu. While the Melanoma Design Document uses different terminology than the original proposal to refer to different levels and categories of information, the concepts contained in both

documents are the same. Fiondella's testimony is the only evidence that Dragon or Darsee was interested in Fiondella's expertise outside of his ability to write specific portions of computer code. If Darsee was interested in Fiondella's suggestions insofar as they related to the overall structure and design of the program, it stands to reason that Darsee would have arranged formal meetings with Fiondella. According to Fiondella's testimony, however, Fiondella made his suggestions spontaneously during a preliminary production meeting. Moreover, the Melanoma Design Document is a highly detailed document and it is unlikely that Darsee would have been able to utilize Fiondella's ideas without any further discussion with him. The Court finds that Fiondella's claim that he was responsible for the incorporation of menus in the Melanoma Design Document is purely speculative.

40. The Melanoma project utilized a touchscreen, graphic designs and a video presentation. Dragon engaged Fiondella to write computer code which controlled the operation of the touchscreen and videodisc player.

41. Dragon provided Fiondella with manuals from the hardware manufacturer to help Fiondella write the code necessary to operate the videodisc player and touchscreen. Fiondella wrote this code in modules. A module is a relatively short sequence of instructions which performs a specific subtask in the computer program. See Note, Idea, Process or Protected Expression: Determining the Scope of Copyright Protection of the Structure of Computer Programs, 88 Mich. L. Rev. 866, 871 (1990) [hereinafter Copyright Protection).

42. Dragon also retained Fiondella to write computer code to retrieve and display graphic images drawn by Dragon artists with Videogram 2.0.

43. Several other persons worked on the project. Nina Romanoff was responsible for the videotape segments; graphic artists were responsible for creating graphics and medical illustrations; and Darsee was responsible for writing the medical text for the program. Darsee was also the project manager.

44. Softel billed Dragon for Fiondella's work on a per diem basis. When Fiondella finished his work, he gave Dragon the computer code in its executable form, and did not deliver his source code for the program.

45. Softel did not deliver a license for the program and the invoices do not make any reference to a license with respect to

further use of Softel's computer code. Softel, however, imbedded a copyright notice into the code of the program.

46. The Melanoma program was completed in May 1985.

The Kaposi Program

47. The Kaposi program was the second videodisc project in the Roche Cancer Management series. Like Melanoma, Kaposi was an interactive program with videodisc segments. It also utilized the same hardware as Melanoma, and it incorporated graphic images drawn with Videogram 2.0. The program was also designed to simulate a physician's work-up of a patient.

48. Kaposi was completed in June 1985. Fiondella used computer code he had written in connection with Melanoma for the operation of the touchscreen, the videodisc player, and to retrieve and display Videogram images in Kaposi.

49. Darsee discussed programming issues with Fiondella in connection with his work in both Melanoma and Kaposi. Some of Darsee's suggestions were technical and concerned changes in the flow and operation of the program.

50. Fiondella wrote the Kaposi code making use of (1) an external file structure; (2) English language commands; (3) functional modules, particularly with respect to operating the hardware; and (4) a hierarchical series of menus and a touchscreen.

51. When Fiondella finished his work, he delivered the computer code in its executable form to Dragon, and retained the source code. He did not deliver a license, nor did he refer to a license on any of his invoices. However, he imbedded a license into the computer code.

June 12 Meeting

52. On June 12, 1985, Fiondella met with Hodge to discuss a proposed contract between Fiondella and Dragon. The proposed contract set forth Softel's fees for computer code written by Softel in future videodisc projects produced by Dragon. The proposed agreement also contained a provision that Softel retained ownership of any computer programs delivered under the agreement.

53. Hodge did not discuss any of the specific provisions contained in Fiondella's proposed contract with Fiondella. He thought that Fiondella's proposal was premature and he chose not to undertake any serious consideration of the proposed contract at

this time.

Access to Computer Code

54. At about the time that Kaposi was completed, Dragon sought Fiondella's assistance with respect to another program it was working on, called Sorbinil. Dragon had hired a free-lance computer programmer, Nixy Kontemporur, to write the computer code for the Sorbinil project. Dragon, however, intended to use graphic images drawn with Videogram 2.0 in the program. Consequently, Dragon hired Fiondella to integrate the computer routines needed to retrieve and display ideogram images into the Sorbinil code.

55. To integrate the routines, Fiondella took the image retrieval routines and a library of assembly language routines, which he kept on a transfer disc, to a computer located in the back room of Dragon's premises. He transferred the code into a special directory on the hard disc of Dragon's computer. He then took a disc from Kontemporur and copied it onto another directory on the hard drive. He linked the two codes together to produce the executable code which he turned over to Kontemporur. When he was finished, he deleted all of the files from the hard drive.

56. On June 10, Softel sent Dragon an invoice which referred to a license for Fiondella's work. The invoice stated in pertinent part

> Certain proprietary software routines developed by Softel Inc. have been included in the Sorbinil application developed for Dragon by a third party. The inclusion of Softel Is routines for use in this single application is authorized upon payment of the licensing fee below. It is understood by Dragon that any subsequent use of these routines in other applications by Dragon or its clients and or the sale or resale of the Sorbinil application by Dragon or its clients to other parties will involve an additional usage fee.

Plaintiff's Exhibit 63

57. Several problems with the computer program arose as the deadline for the completion of the Sorbinil project drew near. On June 12, 1985, Hodge called Fiondella and asked him to reintegrate the graphic image retrieval routines. Fiondella was out of town, but his friend Nicholas Lorimer agreed to help him. Lorimer went to Dragon's premises and Fiondella explained to him the process of integrating Softel code with the Sorbinil code over the phone.

58. The problems with the computer program continued, however, and Fiondella went to Dragon's premises when he returned to New York on June 17. Fiondella and Kontemporur became engaged in an heated argument over whose code was causing the problems with the program. Fiondella testified that Kontemporur asked Fiondella to turn his Softel code over to Kontemporur so that Kontemporur could re-integrate the routines without asking for Fiondella assistance. Fiondella testified that when he refused to give his code to Kontemporur, Kontemporur stated that he had the ability to delete erasures from the hard drive of the computer and could retrieve Softel's code without Fiondella's permission. Fiondella became quite agitated over Kontemporur's threat to obtain his code. Hodge was present during the confrontation. He decided that Fiondella had behaved unprofessionally during the vociferous exchange with Kontemporur and that Fiondella could no longer work at Dragon.

59. Defendants argue that Kontemporur's statement that he had the ability to retrieve Softel's code be stricken as hearsay. At trial, the statement was received into evidence under Rule 801(d)(2)(D) of the Federal Rules of Evidence, subject to a demonstration that Kontemporur was Dragon's agent. It is undisputed that Dragon hired Kontemporur to work on the Sorbinil project on a free-lance basis and that Kontemporur's statement was made while he was working on Sorbinil. To complete the Sorbinil code Kontemporur had to work with Fiondella. Thus, Kontemporur's statement concerning the integration process was within the scope of his employment. Defendants' contention that Kontemporur was unauthorized to make the statement is unavailing. The Advisory Committee Notes to Rule 801(d) (2) (D) make clear that it is unnecessary to show that the declarant was authorized to make the statement. Given that Kontemporur's statement was made in the scope of his employment and in furtherance of his employment, the Court finds that the statement is admissible under Rule 801(d) (2) (D) of the Federal Rules of Evidence.

60. Fiondella eventually succeeded in linking the final executable Sorbinil code with his code. He completed his work at approximately 1:00 a.m. on June 18, 1985. He testified that before he left Dragon's premises he erased all of his source code from Dragon's computer.

61. Darsee was in Stockholm, Sweden, during the dispute between Kontemporur and Fiondella.

62. When Darsee returned from Sweden he gained access to

the source code that Fiondella used in Sorbinil. The code he found had also been used in Kaposi.

63. Darsee claims that he found the code inadvertently. Darsee testified that the computer which Fiondella had been using in connection with the Sorbinil project had "crashed." He stated that he inspected the computer and found a problem with the hard disk of the computer. He determined that the hard disk had to be sent out of the office for repairs. Darsee testified that he copied all of the files that were presently on the hard drive onto floppy diskettes to preserve them. When the hard disc was returned to Dragon's premises, Darsee testified that he transferred the files from the floppy diskettes back onto the hard drive of the computer. In doing so, he examined the directories of the files on the floppy diskettes. He stated that he discovered the source code for the Kaposi program as well as certain object modules containing the library of assembly language routines. He denied using any utility program which would permit him to gain access to files that had been previously erased.

64. In support of its contention that Darsee inadvertently discovered Softel's code, defendants suggest that Lorimer could have left the Softel code on the hard drive of the computer when he was linking the two codes.

65. Darsee's explanation as to how he obtained plaintiff's code cannot be reconciled with the other credible evidence. While it is possible that Lorimer accidentally left the code on defendants' computer, defendants ignore that Fiondella subsequently worked on the program. Fiondella testified that he erased the code when he completed the Sorbinil program early on June 18 and his erasure would have erased any code that Lorimer accidentally left on the computer. Given the protective measures that Fiondella took to keep his code from defendants, it is highly implausible that Fiondella forgot to erase the code from the hard drive of Dragon's computer. In addition, Fiondella's testimony on this issue was particularly compelling and believable. On the other hand, Darsee's explanation appeared manufactured. Moreover, the evidence that Nixy Kontemporur could retrieve the routines by deleting Fiondella's erasures indicates that Dragon had the means of obtaining plaintiff's code. In sum, the Court finds that the weight of the credible evidence indicates that Dragon deliberately gained access to plaintiff's code.

66. After Fiondella finished working on Sorbinil, Darsee made certain corrections to the program at the request of Rob Johnston,

the project manager for Sorbinil. The Court finds that there is insufficient evidence to support plaintiff's claim that Darsee deleted the copyright notice that Fiondella had placed in the Sorbinil code.

Pre-Litigation Programs: Hairy Cell Roche, Back-pain & Heartlab

A. Hairy Cell Roche

67. On or about June 27, 1985, Dragon agreed to produce the third videodisc program in the Roche Cancer Management series, entitled Hairy Cell Leukemia. Roche requested that Dragon produce two versions of the project--one called Hairy Cell U.S., which was to be used with United States hardware, and the other called Hairy Cell Europe, which was to be used with European hardware. Dragon submitted a design proposal to Roche which was approved in October 1985. Thereafter, Dragon submitted a detailed outline of the program. 68. In January 1986, before the program was finalized, Roche asked Dragon to prepare a program for preliminary review in Zurich, Switzerland. Dragon decided to present a version of Hairy Cell U.S. because Roche had United States equipment in Zurich at this time. After he presented the program, Darsee received suggested modifications to the program.

69. Darsee then compiled a new version of Hairy Call U. S. which incorporated some of the changes suggested at the Zurich meeting. Darsee transmitted this version of the program to representatives of Roche's European subsidiaries at their request on March 10, 1986. This program is known as "Hairy Cell Roche." Darsee testified that he did not retain the source code for Hairy Cell Roche because Dragon considered it an interim program.

70. Darsee admitted that he used the code he obtained from Dragon's computer to retrieve and display graphic images in Hairy Cell Roche.

71. After Hairy Cell Roche was delivered, Darsee testified that he made several more changes to the program. He testified that he changed the storage of the graphic files from a compressed format to an uncompressed format. By changing the storage of the graphic files, Darsee was able to use BLOAD, a command in Basic language, to retrieve and display Videogram created images on a computer with a Plantronics board. Thus, the latest version of Hairy Cell U.S. does not contain any of Fiondella's image retrieval routines. This version was delivered to Roche in June 1986.

72. Dragon's claim that the June 1986 version of Hairy Cell U.S. was the final version of the program is against the weight of the evidence. Plaintiff introduced evidence that at an International

Interactive Communications Society ("IICS"] meeting on November 12, 1986 in New York, Darsee demonstrated Hairy Cell Roche--the version which Dragon distributed on March 10, 1986. Plaintiff also introduced into evidence a letter which Dragon sent to Roche's offices in New Jersey which indicated that the Hairy Cell Roche program was the completed version of the program. In light of the evidence, the Court finds that the Hairy Cell Roche program, which was delivered on March 10, 1986, was the final version of the Hairy Cell program intended for use with United States hardware.

73. Hairy Cell Europe does not contain any of plaintiff's image retrieval routines. Due to changes in the hardware, Darsee converted the graphic images used in Hairy Cell Roche to the "Halo" format. Halo is a commercial programming environment, including a paint-and-draw program, with many commands relating to control of the graphic screen. In the Halo format, the command GREAD performs the function of displaying a graphic image on the screen.

B. Low Back Pain

74. In March 1986, Pfizer engaged Dragon to produce a program entitled "Low Back Pain." The program was completed on May 23, 1986. The program contained several program modules, one of which was the Backpain Expert Module. This program allows the user to select different patient characteristics from a series of menus. The program then compares the selected characteristics with possible ailments and provides a statistical analysis of the relative likelihood that the patient is suffering from each possible diagnosis. Both Low Back Pain and the Backpain Expert Module use graphic images drawn with Videogram 2.0. Since the graphic images were in the compressed format, code was needed to decompress and display the images on the screen. As with Hairy Cell Roche, Darsee used Softel's image retrieval routines to accomplish this task.

C. Heartlab

75. Dragon produced an interactive program called Heartlab for Pfizer on March 2, 1986. Darsee wrote all of the computer code for Heartlab, except for the code which governed the animation of a beating heart and the image retrieval routines. In May 1985, Darsee had asked Fiondella to insert into Darsee's code the routines for displaying Videogram images and to insert a routine for simulation of a beating heart. Fiondella inserted these routines and delivered the computer code to Dragon in executable form. Fiondella was paid for this work.

76. In September 1985, Darsee asked Fiondella to modify the animation routines so that the heart would beat more rapidly. Fiondella told Darsee that he was too busy to work on the project and suggested that Darsee do it himself. Darsee made the changes using the image retrieval routines which he had obtained from Dragon's computer.

Copyright Registration

77. On May 22, 1986, plaintiff sought to register a copyright for certain computer code (the "Copyright Collection"]. Plaintiff sought to register the following: (1) a program entitled "SHOWPIX.bas," which includes code similar to that of certain image retrieval routines (4 pages) (2) a collection of object code routines called "8068/8 Support Routines," which includes the five assembly code routines used to retrieve and display Videogram images (61 pages); and (3) source code for the Kaposi computer program (36 pages). Plaintiff was granted a Certificate of Copyright, Registration No. TXu 236 931, for the Copyright Collection, effective May 22, 1986.

Similarity between Pre-Litigation Programs and the Copyright Collection

78. Defendants admit that the image retrieval routines were used in Hairy Cell Roche, Low Back Pain and Heartlab. Defendants' expert, John Cain, [1] confirmed that these programs utilized these routines.

Dragon Products - Paintbox & Body Demo

A. Paintbox

79. In late 1985, Darsee began working on a computer graphics paint-and-draw program, known as Paintbox, which contained additional features that were unavailable from Videogram 2.0. The program was to be made available to graphic artists working for Dragon and was not intended for commercial distribution.

80. Paintbox evolved over time. The earliest versions of Paintbox included the image retrieval routines used to retrieve Videogram 2.0 images. Thereafter, Darsee made changes to the program and in its final form Paintbox no longer incorporated the image retrieval routines.

81. In 1986, Darsee contacted the Kurta Corporation ("Kurta"), because he was interested in obtaining one or two drawing tablets at a reduced price for use with Paintbox by Dragon artists. Darsee

testified that as Dragon was not a typical end user of the product, he inquired whether he could obtain the products at a reduced price. Darsee testified that he was told to write a' letter to the company describing Dragon's business.

82. The letter which Dragon sent to Kurta stated in pertinent part as follows:

> If the kind of work we are doing is of interest to you, particularly with respect to some kind of co-marketing strategy, it might be worthwhile for us to meet with you and demonstrate these programs. This could happen either in New York, Phoenix, or at some meeting where both companies might be present.

83. In his letter, Darsee described the Hairy Cell Roche and Low Back Pain programs and stated that these programs "could be priced high enough to make money."

84. Darsee denied that he attempted to sell Paintbox to Kurta and to co-market the product. Darsee testified that he used the term "co-market" because he believed this was the term that Kurta used when referring to a company that was entitled to a discount.

85. Darsee's claim that he was not seeking any type of co-marketing relationship with Kurta is unbelievable. His letter plainly discusses a co-marketing relationship with Kurta and there is no evidence to support his claim that the term "co-marketing" had any meaning other-than its plain meaning. Darsee's claim that the he was merely seeking a price discount from Kurta is completely belied by his own letter. In any event, Kurta never entered into negotiations with Dragon concerning Paintbox or any other Dragon program.

86. Fiondella testified that at the time Dragon was negotiating with Kurta, Fiondella was also negotiating with Kurta to co-market the newest version of Softel's Videogram software. Plaintiff asserts that Dragon's letter to Kurta ended the Kurta Softel negotiations because Kurta did not want to become involved in litigation. No evidence was introduced to support plaintiff's claim.

B. Body Demo

87. Body Demo is a computer program consisting of a collection of graphic images of the human anatomy created for internal use to assist Dragon's artists. Dragon compiled the images in Body Demo from prior interactive projects it had produced in order to create a graphic library of the human body's organ

systems. Many of the images were drawn using Videogram 2.0.

88. Body Demo was never distributed outside of Dragon.

Dragon Expert Systems

89. The Expert Module is one of the five modules constituting the Hairy Cell Roche program. It is present in Hairy Cell Roche, Hairy Cell Europe, and in the Expert Module of Low Back Pain. The Expert Module instructs the user to select various patient characteristics on several different menus. Each menu in the Expert Module contains a selection entitled "How Close to Diagnosis." This selection compares all of the characteristics selected with a list of weighted characteristics for each type of leukemia, and through the use of bar charts depicts the relative probability that the patient is suffering from each particular strain of leukemia.

90. Darsee wrote the computer code for these routines using a programming device known as a two-dimensional array. Kaposi does not utilize this feature.

91. Fiondella testified that he did not write the computer code for these routines and admitted that there was no code similar to these routines in Kaposi.

92. Darsee exhibited the Hairy Cell Roche Expert Module at a forum of IICS on November 12, 1986 in New York. six companies, including Dragon, made presentations at the forum. There were, at most, 15-20 people present during Darsee's presentation.

93. During his presentation, Darsee explained how the Expert Module worked and described the process by which the program matched the disease characteristics selected by the user with the list of weighted characteristics of the subject diseases. Darsee did not mention Fiondella or Softel in connection with the program.

94. None of the persons present at the meeting requested that Dragon create a similar expert system for them or expressed an interest in obtaining a license for use of Dragon's computer code for this program.

95.In the Fall of 1985, Dragon began using the name "Dragon Expert Systems" as a marketing device to bring attention to its capabilities in the field of interactive technology. The term was intended to refer to Dragon's ability to create expert systems, but was not intended to limit its capabilities to this area.

96. Dragon sponsored a hospitality suite at a conference of

the American Association of Family Practitioners on October 911 in Anaheim, California. In connection with its presentation, Hodge sent letters to prospective clients which described Dragon Expert Systems as follows:

> Recently, as a result of Dragon's application of medical-marketing communication skills in the field of interactive technologies, we have expanded--and can now offer a specialized service known as DRAGON EXPERT SYSTEMS. EXPERT SYSTEMS is a group of physicians, artists whose medium is computer-generated imaging, and computer programmers, who use the interactive technologies as educational and marketing tools.

Plaintiff's Exhibit 160.

97. In a November 1, 1985 press release Dragon again described Dragon Expert Systems as a group of "physicians, computer graphic artists and programmers, who use interactive technologies as educational and marketing tools." The press announcement also stated that "computer technology, presentation video/graphics, and solid, well-researched information are the foundations of our work."

98. No evidence was presented to show that Dragon obtained any sales or business leads from either the conference or the press release.

99. On January 2, 1986, in connection with an upcoming presentation to J.C. Penny, Nina Romanoff stated that Dragon would be demonstrating the kind of "innovative, interactive programming that Dragon Expert Systems is currently designing and producing."

100. On January 4, 1986, Dragon submitted a proposal for an interactive educational program to Barnes-Hind. Dragon represented that the computer program codes and routines were its own property and granted Barnes-Hind a license for use in the Barnes-Hind Interactive Education program.

Post-Litigation Programs

101. In 1988, Dragon produced the following programs: (1) Unasyn for Pfizer; (2) Hospital Microbiologist's Computer Module-An Interactive Program in Support of Unasyn IM/IV ("Micro"] for Pfizer; (3) OB/GYN for Pfizer; (4) Managed Health Care for CIBA-Geigy; and (5) Heart Command for Smith Kline French [collectively, the "post-litigation programs"].

102. Each of these programs utilize either the EGA or VGA graphics cards, which are more advanced than the Plantronics graphics card. The EGA and VGA graphics cards have the capability of displaying graphic images of photographic quality.

103. Videogram 2.0 had been designed for use with a Plantronics graphics card. As a result of Dragon's decision to use the EGA or VGA graphics card, Dragon no longer used images drawn with Videogram 2.0. Thus, there was no need for the image retrieval routines or related assembly language routines. Instead, in the post-litigation programs the graphics files are stored in the Halo format, and are retrieved and displayed using the standard Halo GREAD command.

104. Dragon also eliminated the use of videodiscs in its interactive presentation. There was, therefore, no need for the routines which controlled and operated the videodisc player.

105. Unlike Heartlab, Hairy Cell Roche and Low Back Pain which were written in Basic programming language, the post-litigation programs are written in QuickBASIC, which is an advanced version of Basic.

Literal Similarity between the Post-Litigation Programs and the Copyright Collection

106.There is no literal similarity between the code contained in the Copyright Collection and the post-litigation programs.

Non-Literal Similarity between the Post-Litigation Programs and the copyright Collection

107. Plaintiff contends that in the Melanoma and Kaposi programs, Fiondella made several programming decisions which he included in the Copyright Collection. Plaintiff argues that these elements constitute the structure, sequence and organization of his copyrighted work and that Dragon's post-litigation programs are infringing because they contain these elements. The elements which plaintiff claims are entitled to copyright protection are the use of the following:

(1) an external file structure;

(2) English language commands;

(3) functional modules, specifically including those to operate the hardware; and

(4) a hierarchical series of menus with a touchscreen.

1. External Files

108. Cain's undisputed testimony established that the use of external data files for, inter alia, picture files and text files is a common feature in interactive computer programs. In these types of programs there is generally an extensive amount of information to be organized and external files are the most practical method of storing the data.

109. The Court finds Darsee's testimony that he learned of the use of external files when he worked with Chris Bazelgette on the Azactam project credible. The code prepared by Bazelgette for Azactam shows the use of an external file structure.

2. English Language Commands

110. Cain's unrebutted testimony also established that writing a computer program using English-language commands was common, as it was easier than using other symbols. In response to plaintiff's inference at trial that the insertion of a space between letters was unique, Cain testified that while this was less common he had seen code written in this manner. The court finds Cain's testimony in this regard credible.

3. Functional Modules

111. Fiondella. testified that a distinctive feature of Melanoma and Kaposi was that these programs were constructed in modules around particular functions. The Court, however, agrees with Cain's credible testimony that the organization of code into modules relating to particular functions is a common programming technique.

Cain testified that the functional modules which plaintiff claimed were an element of the structure and organization of Kaposi were related to the hardware–i.e., the videodisc player, and the touchscreen. Cain examined sample computer code provided by the manufacturers of the videodisc controller and touchscreen and found that like the computer code in Melanoma and Kaposi, the sample code was also organized into modules relating to particular videodisc and touchscreen functions.

4. Hierarchy of Menus and Touchscreen

112. As to the use of a hierarchy of menus and a touchscreen, Cain's testimony established that a touchscreen is a user-friendly input device commonly used in interactive programs. He also testified that the use of menus was also a user-friendly device commonly used in conjunction with a touchscreen. He further stated that the use of a hierarchy of menus in an interactive

program, implemented with a touchscreen is pervasive.

113. Fiondella testified that Dragon copied Softel's method and manner by which the computer receives, assembles, retrieves and communicates data. Cain testified that when a touchscreen. is used a certain code is necessary to get a touchpoint, to interpret the touchpoint as a command and to execute the command. Based on Cain's expert testimony, the Court finds that Dragon did not copy the method used in Kaposi to operate the touchscreen.

5. Differences in Computer Code

114. Plaintiff's claim that Cain admitted that all of the post-litigation programs evolved from Softel's computer code in the Kaposi program is unsupported by the trial record. To the contrary, Cain's detailed testimony established that the post litigation programs were significantly different from Kaposi in the following respects: (1) code; (2) command sets and processing of commands; (3) internal file structure; (4) processing of files; (5) command file interaction structure; and (6) organization of and relationship between modules of code.

115. Based on a thorough analysis of the computer code in plaintiff's copyrighted work and defendants' post-litigation programs, Cain concluded that in his expert opinion defendants' programs and plaintiff's copyrighted work did not have the same structure. The Court found Cain to be an extremely knowledgeable and credible witness, and based on his expert opinion the Court finds that the post-litigation programs were not in any way derived from plaintiff's copyrighted work.

CONCLUSIONS OF LAW

I. Copyright infringement

1. To prevail on a claim of copyright infringement, the plaintiff must show that he owns a valid copyright and that defendants impermissibly copied his copyrighted work. See Weissman v. Freeman, 868 F.2d 1313, 1318 (2d Cir.), cert. denied, 493 U.S. 883 (1989); Novelty Textile Mills, Inc. v. Joan Fabrics Corp., 558 F.2d 1090, 1092 (2d Cir. 1977). In this case, plaintiff asserts two types of infringement. The first claim concerns the programs Hairy Cell Roche, Low Back Pain, and Heartlab. Plaintiff claims that these programs copy the literal computer code contained in the Copyright Collection. The second claim addresses the post-litigation programs. Plaintiff asserts that the post-litigation programs copy the "structure and organization" of the Kaposi computer program.

A. Joint Author

2. Defendants first contend that the Darsee is a joint author of the Kaposi program. In the alternative, defendants argue that Darsee is a joint author of the source code for Kaposi.

3. Under section 101 of the Copyright Act, a joint work is a "work prepared by two or more authors with the intention that their contributions be merged into inseparable or interdependent parts of a unitary whole." 17 U.S.C. § 101 (1988). There are two requirements that a putative joint author must show to establish that a particular work is a joint work. First, the putative joint author must demonstrate that he or she contributed to the work. Second, the putative joint author must establish that at the time the work was created he or she intended to contribute to a joint work. See Weissman, 868 F.2d at 1318-19.

4. Kaposi consists of medical text written by Darsee, graphic illustrations created by Dragon artists, video presentations produced by Nina Romanoff and computer code written by Fiondella. Since Fiondella knew of the contributions others were making to the Kaposi program, defendants argue that under Edward B. Marks Music Corp. v. Vogel Music Corp., 140 F.2d 266 (2d Cir. 1944), plaintiff intended its work to become part of a joint work. In Marks, two persons were involved in the composition of a song. One person wrote the lyrics for the song and the other ,wrote the music. See id. at 267. The Second Circuit hold that since both persons knew that their individual efforts were being combined to produce one single work, the parties intended to create a joint work. See id.

5. Defendants' reliance on Marks is misplaced. From the outset of his dealings with Dragon, Fiondella consistently refused to turn over his source code to Dragon. In light of his conduct, it is unreasonable to infer that Fiondella intended his work to merge into the final product. Thus, the Court finds that defendants have failed to establish that Fiondella intended his contribution at the time it was created "to become part of a unitary work to which another will make or already has made a contribution." Weissman, 868 F.2d at 1319.

6. Defendants next argue that given Darsee's contributions to the computer code, the computer code itself is a joint work. Contrary to defendants' contention, the Melanoma Design Document fails to indicate that Darsee contributed to the writing of the actual computer code. Although the Melanoma Design Document describes the flow of the program, it does not contain any computer code. Consequently, Darsee I s preparation of this

document is insufficient to render him a joint author of the computer code.

7. Darsee's notes also fail to indicate a level of participation sufficient to render Darsee a contributor to the computer code. The notes merely contain Darsee's suggestions or they bring certain errors to Fiondella's attention. In Whelan Assocs. v. Jaslow Dental Lab., 609 F. Supp. 1307, 1318-19 (E.D. Pa. 1985), aff'd, 797 F.2d 1222 (3d Cir. 1986), cert. denied, 479 U.S. 1031 (1987), the district court rejected a claim of joint authorship under similar circumstances. In Whelan, defendant argued that he was a co-author of computer code written by plaintiff because he conceived the idea of developing the particular computer program, he explained to plaintiff what the computer program was supposed to do, and he helped the plaintiff design the language and format of some of the screens which would appear as part of the computer program. The district court found defendant's claim unpersuasive given that it was plaintiff's "expertise and creativeness that designed the methods by which raw information would be stored, held in memory, collated, assembled, updated, incorporated and added to the visual screens or included in print-outs, subject to recall." Id. at 1318.

The court compared defendant's contribution to that of an owner who explains to an architect the type and functions of a building the architect is to design for the owner. See id. at 1319. In this situation, the owner is not a co-author of the drawings regardless of the extent of the owner's participation in offering ideas and setting limitations. See id. Similarly, where the owner of a computer program advises the computer programmer what he wants the computer program to accomplish, the computer programmer is the sole author of the source and object code and the design of the system. See id. at 1318; S.O.S., Inc. v. Payday, Inc., 886 F.2d 1081, 1086-87 (9th Cir. 1989).

8. In this case, the overwhelming majority of the computer code was written by Fiondella. Any actual programming decisions Darsee may have made as evidenced by his notes are minimal in relation to the extensive programming completed by Fiondella. Although Darsee determined the flow of the program, "[t]o be an author, one must supply more than mere direction or ideas: one must 'translate [ ] an idea into a fixed, tangible expression entitled to copyright protection.'" S.O.S., 886 F.2d at 1087 (quoting Community for Creative Non-Violence v. Reid, 490 U.S. 730, 757)). Given that Darsee did no more than advise Fiondella of the tasks that the program was to accomplish, defendants' claim of joint

authorship is without merit. See id.

B. Pre-Litigation Programs: Literal Similarity

9. Plaintiff established that defendants copied plaintiff's image retrieval routines in the Hairy Cell Roche, Low Back Pain and Heartlab programs. Heartlab, however, is not an infringing program because defendants paid for plaintiff's image retrieval routines which were used to display a beating heart. The routines which Darsee copied were used only to modify the picture of the beating heart. Since Dragon paid for the use of these routines, defendants were authorized to utilize them in this program. Accordingly, Heartlab is not an infringing program.

10. Defendants argue that its copying of plaintiff's image retrieval routines in Hairy Cell Roche and Low Back Pain did not violate federal copyright law because (1) the image retrieval routines are not entitled to copyright protection; and (2) its use of the image retrieval routines constituted a fair use.

1. Idea-Expression Dichotomy

11. A fundamental principle of copyright law is that copyright protection extends only to the expression of the idea, and not to the underlying idea itself. See 17 U. S. C. S 102 (b) (1988). The idea-expression merger doctrine developed from this rule. It holds that "[I]f there is only one way to express the idea, 'idea' and 'expression' merge and there is no copyrightable material." M. Kramer Mfg. Co. v. Andrews, 783 F.2d 421, 436 (4th Cir. 1986). Thus, with respect to computer programs the issue is whether a particular idea is capable of being expressed in a different way. See Apple Computer, Inc. v. Franklin Computer Corp. 714 F.2d 1240, 1253 (3d Cir. 1983). If other programmers independently can create a program which performs the same function using a different expression then the program in issue is the expression of an idea and is copyrightable. See id.

12. Defendants argue that the graphic image retrieval routines which Fiondella wrote to retrieve and display images created by Videogram 2.0 are not entitled to copyright protection under the merger doctrine. Defendants contend that since the graphic images were created by Videogram 2.0 and displayed using a Plantronics graphics card, there were limited ways code could be written to display Videogram 2.0 images.

13. Defendants' argument ignores Darsee's testimony that he used the BLOAD function in Basic language in Hairy Cell U.S. to retrieve and display Videogram 2.0 created images on a Plantronics

graphics card. No evidence was presented which would indicate that Darsee had any difficulty in finding another means of retrieving and displaying Videogram 2.0 created images. Rather, his testimony indicated that the BLOAD function was readily available to him. The only difference between the two methods of image retrieval and display is that to use BL0AD Darsee stored the Videogram images in an uncompressed format. This difference is insignificant since both BLOAD and plaintiff's image retrieval routines permit the display of Videogram 2.0 images on a Plantronics graphics card. Thus, the Court finds that the image retrieval routines do not merge into the expression of the idea and, hence, are entitled to copyright protection.

2. Fair Use

14. Defendants next argue that their use of plaintiff's image retrieval routines was a "fair use" under the Copyright Act. Fair use is an affirmative defense to a claim of copyright infringement. The fair use doctrine is an "equitable rule of reason." Sony Corp. of America v. Universal City Studios, 464 U.S. 417, 448 (1984). The purpose of the doctrine is to "balance[] the exclusive right of copyright owners against 'the public's interest in the dissemination of information affecting areas of universal concern, such as art, science, and industry.'" Weissman, 868 F.2d at 1323 (quoting Wainwright Secs. Inc. v. Wall Street Transcript Corp., 558 F.2d 91, 94 (2d Cir. 1977), cert. denied, 434 U.S. 1014 (1978)). Section 107 of the Copyright Act codifies the "fair use" doctrine. The section articulates four non-exclusive factors which are to be considered in deciding whether a particular use is fair:

> (1) the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes;
>
> (2) the nature of the copyrighted work:
>
> (3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and
>
> (4) the effect of the use upon the potential market for or value of the copyrighted work.

17 U.S.C. § 107 (1988).

15. In this Circuit, "bad faith by the user of the copyrighted material [that] suggests unfairness," Maxtone-Graham v. Burtchaell, 803 F.2d 1253, 1264 (2d Cir. 1986), cert. denied, 481 U.S. 659 (1987), is another relevant consideration in the fair use analysis.

See New Era Publications Int'l v. Carol Publishing Group, 904 F.2d 152, 160 (2d Cir.) , cert. denied, 111 S. Ct. 297 (1990). In Weissman, the Second Circuit noted that "to make use of another's copyright material fairly presupposes that the actor acted fairly and in good faith." Weissman, 868 Fd. at 1313.

a. The Purpose and Character of the Use

16. In examining this factor, section 107 directs the court to consider "whether the use is of a commercial nature or is for nonprofit educational purposes." Although the commercial use of copyrighted material weighs against a finding of fair use, it is not conclusive in the fair use inquiry. See Maxtone-Graham, 803 F.2d at 1262. It is undisputed that Dragon used plaintiff's image retrieval routines in programs which Dragon produced for pharmaceutical companies for profit. Since the programs were produced solely for profit, the first factor weighs against a finding of fair use.

b. The Nature of the Copyrighted Work

17. The nature of the work favors a finding of fair use, when the copyrighted work is factual rather than creative. See Diamond v. Am-Law Corp., 745 F.2d 142 (2d Cir. 1984). This factor recognizes that because "the risk of restraining the free flow of information is more significant with informational work, the scope of permissible fair use is greater." Consumers Union of U.S., Inc. v. General Signal Corp., 724 F.2d 1044, 1049 (2d Cir. 1983), cert. denied, 469 U.S. 823 (1984).

The image retrieval routines performed the specific function of retrieving and displaying graphic images created with Videogram 2.0. Since the computer code Fiondella wrote performed a necessary utilitarian function this factor weighs in favor of a finding of fair use.

c. The Amount and Substantiality of the Portion Used

18. The third factor requires the Court to consider both "the amount and substantiality of the portion used in relation to the copyrighted work, not to the allegedly infringing work. See New Era Publications, 904 F.2d at 158. A finding of fair use has been made even where an entire copyrighted work has been utilized, see Sony Corp. of America v. Universal City Studios, 464 U.S. 417 (1984) and rejected when a fraction of the copyrighted work was utilized. However, where the "heart" of the work is copied, this factor generally weighs against a finding of fair use. See Harper & Row, Publishers, Inc. v. Nation Enters., 471 U.S. 539, 565 (1985). Thus, the court must balance both the quantitative and qualitative aspects

of this component.

19. The image retrieval routines used by Dragon are only a small percentage of the Copyright Collection. The use, however, is qualitatively unfair. The image retrieval routines are a key part of the Copyright Collection that perform a valuable function. If the portion used can be used separately apart from the copyrighted work, it may be qualitatively important. See Pacific & Southern, Inc. v. Duncan, 744 F.2d 1490, 1497 (lith Cir. 1984), cert. denied, 105 S. Ct. 1867 (1985). The significance of the routines is demonstrated by the value they have apart from the Copyright Collection. Such routines are sold on the market as a supplement to paint-and-draw programs which do not have the capability of retrieving graphic images. In addition, Dragon hired Fiondella specifically to write computer code which would enable Dragon to incorporate Videogram 2.0 graphic images into its software programs. This also indicates that the market value of the routines is separate and apart from, the remainder of the Copyright Collection. Given that the routines have a separate marketability, this factor weighs against a finding of fair use.

d. Effect on the Market

20. The final factor is the "effect of the use upon the potential market for or value of the copyrighted work." 17 U.S.C. § 107(4) (1988). The factor "is undoubtedly the single most important element of fair use." Harper & Row, 471 U.S. at 566.

21. While Dragon used the image retrieval routines in interactive programs it sold to its clients, Dragon was not in the business of licensing software to third parties and did not make any effort to market the image retrieval routines. There is no indication that plaintiff lost potential customers as a result of defendants' use of its image retrieval routines. Rather, the evidence shows that with the advent of the EGA card in 1985, Fiondella concentrated on developing Videogram 3.0 which was capable of creating images that could be displayed on an EGA card and abandoned his efforts to market Videogram 2.0. Plaintiff's allegation that Dragon interfered with plaintiff's business opportunity with Kurta is without merit as plaintiff was marketing Videogram 3.0 which did not utilize Videogram 2.0 images. There is also no evidence to support plaintiff's claim that defendants' incorporation of plaintiff's image retrieval routines into its programs discouraged others from hiring Fiondella to obtain its image retrieval routines. Given the lack of evidence that Dragon's use of plaintiff's image retrieval routines would affect the potential market for the copyrighted work, this

factor weighs heavily in favor of fair use. See Maxtone-Graham, 803 F.2d at 1264.

22. The factual nature of the image retrieval routines together with the lack of effect on the market for the routines is balanced against the commercial nature of defendants' use of significant aspects of plaintiff's copyrighted work.

23. Turning to the issue of bad faith, Darsee admitted that when he saw plaintiff's image retrieval routines on the computer he saw plaintiff Is copyright notice. The notice, however, did not dissuade him from using the routines in other Dragon projects. Darsee claimed that he acted properly in deleting the copyright notice and using the routines because Dragon had already paid Fiondella for his work. In addition, when Fiondella had worked on the Azactam project, Darsee had asked Fiondella to remove his copyright notice and Fiondella had agreed. Thus, Darsee stated that he believed he had a right to remove the copyright notice.

Darsee's justification for using Fiondella's computer code is not credible. Fiondella agreed to remove his copyright notice from the Azactam project only to accommodate Darsee and Dragon's client. There is utterly no basis for believing that Fiondella's assent included a waiver of his rights in the computer code.

Darsee's explanation is also unbelievable given the extraordinary lengths Fiondella went to protect the privacy of his code. In all of his dealings with Dragon, Fiondella refused to turn over his code to Dragon. Fiondella did not yield to pressure to turn over his computer code even during the Sorbinil project when there were problems in integrating the code. Indeed, Fiondella became quite agitated and upset over Nixy Kontemporur's threat to obtain Fiondella's code when Fiondella refused to turn his code over to Dragon.

Finally, there is no reasonable basis for Darsee's belief that Dragon's payment for Fiondella's work authorized him to utilize Fiondella's code in other projects. The copyright notice that plaintiff sent to Dragon with respect to the Sorbinil project explicitly stated that Dragon did not have a license to use Softel's routines in any other programs for any other client. For the above reasons, the Court finds that Darsee did not act in good faith when he utilized plaintiff's image retrieval routines.

24. In this case, defendants' lack of good faith in utilizing the routines tips the balance of the factors against a finding of fair use. Accordingly, plaintiff is entitled to recover on its claim of copyright

infringement with respect to defendants' literal copying of plaintiff's image retrieval routines in the programs Hairy Cell Roche and Low Back Pain.

C. The Post-Litigation Programs: Non-Literal Similarity

25. Plaintiff's second copyright infringement claim asserts that defendants' post-litigation programs copy the structure, sequence and organization of plaintiff's copyrighted work. The four elements which plaintiff claims defendants impermissibly copied are:

(1) the use of external files;

(2) the use of English language commands;

(3) the organization of the code into functional modules; and

(4) the use of hierarchical menus with a touchscreen.

Plaintiff argues that the above elements comprise an "authoring language which is protectable expression under the Third Circuit's decision in Whelan Assocs. v. Jaslow Dental Lab., 797 F.2d 1222 (3d Cir. 1986), cert. denied, 439 U.S. 1031 (1987).

26. It is well established that the literal elements of a computer program, ie., the source and object code, are copyrightable. See, e.g., Apple Computer v. Franklin Computer, 714 F.2d 1240, 1249 (3d Cir. 1988), cert. denied, 464 U.S. 1033 (1984). The Second Circuit recently joined other courts which have held that copyright protection extends to the nonliteral elements of a computer program. See Computer Associates Int'l, Inc. v. Altai, Inc., slip op. 91-7893, 91-7935 (2d Cir. June 1992). Courts, however, have differed with respect to the scope of such copyright protection. In Whelan, the Third Circuit found that "the purpose or function of a utilitarian work would be the work's idea, and everything that is not necessary to that purpose or function would be part of the expression of the idea." Whelan, 797 F.2d at 1236. Plaintiff argues that because defendants could have produced an interactive program which conveys medical information without using hierarchical menus, functional modules, external files, or English language commands, these elements are not necessary to the expression of the idea and, therefore, are entitled to copyright protection.

27. Judge Pratt, sitting by designation, rejected the Whelan rule in Computer Assocs. Int'l, Inc. v. Altai, Inc., 775 F. Supp. 544 (E.D.N.Y. 1991), aff'd, slip op. 91-7893, 91-7935 (2d Cir. June 1992). Judge Pratt observed that the major flaw of the Whelan test was that it broadly defined the purpose of the program. Thus, he

rejected the Whelan rule because it "'assumes that only one 'idea" in copyright law terms, underlies any computer program, and that once a separable idea can be identified, everything else must be expression.'" Id. at 559 (quoting 3 Nimmer on Copyright 13.03 [F], at 13-62.34). Judge Pratt decided that the better method for distinguishing idea from expression was Judge Hand's abstractions test which traditionally has been applied to literary works. The abstractions test is as follows:

> Upon any work . . . a great number of patterns of increasing generality will fit equally well, as more and more of the incident is left out. The last may perhaps be no more than the most general statement of what the (work] is about and at times might consist only of its title; but there is a point in this series of abstractions where they are no longer protected, since otherwise the [author) could prevent the use of his "ideas" to which, apart from their expressions, his property is never extended.

Nichols v. Universal Pictures Corp., 45 F.2d 119, 121 (2d Cir. 1930), cert. denied, 282 U.S. 902 (1931). Judge Pratt explained that with respect to computer software, the different increasing levels of abstraction are from object code, to source code, to parameter lists, to services required, to general outline. See Computer Assocs., 775 F. Supp. at 560.

27. In affirming Judge Pratt's decision, the Second Circuit set forth a three part test for distinguishing between unprotected idea and protected expression, based on the abstractions test advocated by Judge Pratt. See Computer Associates, slip op. at 30. First, using the abstractions test the court is directed to examine the allegedly copied program's structure and isolate each level of abstraction. See id. at 31. Second, the court is to examine the "structural components at each level of abstraction to determine whether their particular inclusion at that level was "idea" or was dictated by considerations of efficiency, so as to be necessarily incidental to that idea; required by factors external to the program itself; or taken from the public domain." Id. These components are filtered out of the analysis as they are non-protectable expression. See id. Third, the court must compare the elements which are left with the structure of the allegedly infringing program to determine whether there is substantial similarity between the two works. See id.

While not extolling the same three part test, several courts and commentators have found that elements in computer software programs that are the most efficient means of accomplishing a task

or are standard in the industry are not protected by copyright. See Atari v. North Am. Philips Consumer Elecs. Corp., 672 F.2d 607 (7th Cir.), cert. denied, 459 U.S. 880 (1982) ; Lotus Dev. v. Paperback Software Intl 1, 740 F. Supp. 37 (D. Mass. 1990); Telemarketing Resources v. Symantec Corp., 12 U.S.P.Q.2d (BNA) 1991, 1995-96 (N.D. Cal. 1989); Peter S. Menell, An Analysis of the Scope of Copyright Protection for Application Programs, 41 Stan. L. Rev. 1045, 1051-56 (1989); David Nimmer, et al., A Structured Approach to Analyzing the Substantial Similarity of Computer Software in Copyright Infringement Cases, 20 Ariz. St. L.J. 624, 647 (1988); Note, Idea, Process, or Protected Expression?: Determining the Scope of Copyright Protection of the Structure of Computer Programs, 88 Mich. L. Rev. 866, 899 (1990); Comment, Computer Software Design: User Interface--Idea or Expression?, 60 U. Cin. L. Rev. 161 (1991).

28. In this case, plaintiff claims that there is substantial similarity between its copyrighted work and defendants' post-litigation programs at the highest level of abstraction. Plaintiff states that the ultimate function of its program is to "direct the coordinated functioning of computers, computer screens, and video disks in order to produce an educational presentation with which human beings can interact by use of a touch screen." Plaintiff's Trial Memorandum, 87 Civ. 0167 (JMC), at 37 (S.D.N.Y. Apr. 22, 1991). Plaintiff claims that the programs are substantially similar because defendant's post-litigation programs contain (1) the use of a hierarchy of menus, (2) functional modules, (3) external files, and (4) English language commands. Defendants argue that these elements are entitled to copyright protection.

29. Turning first to defendants' use of hierarchical menus, plaintiff does not claim that the menus in the Copyright Collection and in defendants' post-litigation programs are substantially similar. Plaintiff Is claim is significantly broader. Softel merely argues that both programs utilize menus. The expert testimony established that the use of hierarchical menus, which contains a series of choices, and a touchscreen is common. It is one of the most efficient and user-friendly interfaces. In Computer Associates, the Second Circuit specifically observed that "[e]fficiency is an industry wide goal" in support of its conclusion that evidence of similarly efficient structure is not a factor in the substantial similarity analysis. See Computer Assocs., slip op. at 33.

One court which refused to extend copyright protection to the idea of using menus explained as follows:

> [T]he idea at issue, the process or manner of navigating internally on any specific screen displays likewise is limited in the number of ways it may be simply achieved to facilitate user comfort. To give the plaintiff copyright protection for this aspect of its screen displays, would come dangerously close to allowing it to monopolize a significant portion of the easy-to-use internal navigational conventions for computers.

Manufacturers Technologies, Inc. v. Cams, Inc., 706 F. Supp. 984, 995 (D. Conn. 1989); see Telemarketing Resources, 12 U.S.P.Q.2d at 1996. The Second Circuit expressly approved of the reasoning utilized by the court in Manufactures Technologies in Computer Associates. See Computer Assocs., slip op. at 35. Given that the use of hierarchical menus and a touchscreen is necessary for an effective and efficient interactive program, the Court finds that the mere use of these elements is not copyrightable.

30. The use of functional modules is also not entitled to copyright protection. The evidence established that programmers commonly write code in modules which perform each necessary subtask. The use of modules is particularly useful when a videodisc and touchscreen are utilized. Moreover, contrary to plaintiff's assertion, the mere use of functional modules does not constitute the structure of a computer program. The structure of a program is the "functions of the modules in a program together with each module's relationships to other modules." Note, Copyright Protection, supra at 871. Thus, the Court finds that plaintiff's use of functional modules is also not entitled to copyright protection.

31. The evidence also established that external files are commonly used in interactive computer programs because of the extensive amount of information which must be organized. In Computer Associates, the Second Circuit observed that there are many elements which are dictated by either "(1) the mechanical specifications of the computer on which a particular program is intended to run; (2) compatibility requirements of other programs with which a program is designed to operate in conjunction; (3) computer manufacturers' design standards; (4) demands of the industry being serviced; and (5) widely accepted programming practices within the computer industry." Id. at 36. Such elements are not entitled to copyright protection. See id. The use of external files falls within several of these categories and, therefore, this element is also not entitled to copyright protection.

32. Finally, Cain's testimony established that the use of English language commands was logical, pervasive, and the most effective

way that the programmer can keep track of the available commands. Consequently, this element is not entitled to copyright protection.

33. Since each of the elements which plaintiff claims are entitled to copyright protection are filtered out at the second step of the Second Circuit's analysis set forth in Computer Associates, it is unnecessary for the Court to proceed to the third part of the analysis.

34. Softel does not dispute Cain's testimony that the four alleged copyrightable elements are either common, pervasive, obvious and/or essential to an efficient interactive computer software program. Plaintiff's contention is merely that the elements are not strictly necessary to an interactive program and, therefore, they are protectable expression. In light of the Second Circuit's recent decision in Computer Associates, however, it is now settled law in this Circuit that expression which is standard or the most efficient means of accomplishing a task merges with the idea and is not entitled to copyright protection. In sum, even at the broadest level of abstraction, all of the elements which plaintiff claims are protectable expression are not entitled to copyright protection as they are merely stock elements which are commonly used or mandated by efficiency considerations. Accordingly, plaintiff's claim of copyright infringement with respect to the post-litigation programs is without merit.

II. Section 43(a) of the Lanham Act

35. In its amended complaint, plaintiff alleges that defendants violated section 43(a) of the Lanham Act, 15 U.S.C. S 1125(a) by misrepresenting the authorship of the Hairy Cell Expert Module during Darsee's presentation at the IICS on November 12, 1986. During trial, plaintiff alleged that defendants wrote several communications which violated section 43(a) of the Lanham Act in that they failed to attribute authorship to Fiondella.[2]

36. Section 43 (a) of the Lanham Act proscribes "both express and implied false representations made in connection with the sale of goods and renders the maker of such representations liable to those damaged by the representations." Consumers Union, 724 F.2d at 1051; see 15 U.S.C. § 1125(a) (1988). To prevail on a misrepresentation claim under section 43 (a) of the Lanham Act, "a plaintiff must prove that the defendant misrepresented an 'inherent quality or characteristic' of the defendant's product." National Ass'n of Pharmaceutical Mfrs., Inc. v. Ayerst Labs., 850 Fd. 904, 917 (2d Cir. 1988).

37. With respect to Darsee's presentation of the Hairy Cell

Expert Module at the IICS meeting the evidence established that Darsee wrote the computer code for the Expert Module. Fiondella admitted that he did not write this computer code. Cain's testimony confirmed that none of the code in Kaposi was similar to the code that performed the essential operations of the Hairy Cell Expert Module.

38. Since it is undisputed that Darsee wrote the code which performs the essential operations of the Hairy Cell Expert Module, defendants did not make any misrepresentations concerning the "inherent quality or characteristics" of its products.[3]

39. The letters which plaintiff alleges violate section 43(a) of the Lanham Act state that Dragon has a division entitled Dragon Expert Systems which is a group of physicians, computer graphic artists and programmers, and that Dragon Expert Systems is capable of creating interactive programming. See Findings of Fact, at 1 95-97, 99, 100. Plaintiff claims that the letters are false and misleading because they fail to state that Paul Fiondella is responsible for Dragon's present ability to produce interactive programs. Plaintiff also alleges that the letters created consumer confusion as to the true authorship of the computer program and deprived Softel of possible business.

40. Even assuming the truth of plaintiff's claim that it is responsible for Dragon's present capabilities, Dragon's statements in the letters are true representations. The letters merely state that Dragon has the present ability to produce interactive computer programs. They do not make any claim as to how Dragon gained the ability to produce such programs. Contrary to plaintiff's contention, the Lanham Act does not impose an obligation upon Dragon to give plaintiff recognition for its work in prior projects. Thus, plaintiff's claim that given Fiondella's contributions, Dragon was obligated to give credit to Fiondella is wholly without merit. Accordingly, plaintiff's claim under the Lanham Act is dismissed.

III. State Law Claims

A. Trade Secret

41. To prevail on a trade secret claim, plaintiff must demonstrate that (1) it possessed a trade secret, and (2) defendant is using that trade secret in breach of an agreement, confidence, or duty, or as a result of discovery by improper means." Rapco Foam, Inc. v. Scientific Applications, Inc., 479 F. Supp. 1027, 1029 (S.D.N.Y. 1979). A trade secret "'may consist of any formula, pattern, device or compilation of information which is used in one's

business, and which gives him an opportunity to obtain an advantage over competitors who do not know or use it. I" Integrated Cash Mgt. Servs., Inc. v. Digital Transactions, Inc., 920 F.2d 171, 173 (2d Cir. 1990) (quoting Restatement of Torts § 757, comment b). In determining whether a trade secret exists, New York courts consider the following:

> (1) the extent to which the information is known outside of his business;
>
> (2) the extent to which it is known by employees and others involved in his business;
>
> (3) the extent of measures taken by him to guard the secrecy of the information;
>
> (4) the value of the information to him and to his competitors;
>
> (5) the amount of effort or money expended by him in developing the information;
>
> (6) the ease or difficulty with which the information could be properly acquired or duplicated by others.

Id. The most meaningful consideration is "whether the information was secret." Lehman v. Dow Jones & Co., Inc., 783 F.2d 285, 298 (2d Cir. 1986).

42. Plaintiff claims that both the image retrieval routines as well as the structure, sequence and organization of its code constitutes a trade secret. The structure, sequence and organization of plaintiff Is code is clearly not a protectable trade secret. Fiondella freely discussed his use of menus, English language commands, functional modules and external files with Darsee. In addition, the evidence established that these elements were not novel or original. See, e.g., Ferber v. Sterndent Corp., 51 N.Y.2d 782, 783-84, 412 N.E.2d 1311, 1311, 433 N.Y.S.2d 85, 85 (1980).

43. The evidence clearly established that the image retrieval routines are a protectable trade secret. Defendants' sole contention that Fiondella failed to maintain the secrecy of the routines is without merit. Fiondella consistently refused to give the routines to Dragon and he provided Dragon only with the finished executable code which contained the routines.

44. The evidence also established that defendants used plaintiff's trade secret after discovery by improper means. Defendants' improper use of the routines where plaintiff took steps to safeguard the secrecy of the routines, creates liability for use of

a trade secret. See Defiance Button Mach. Co. v. C & C Metal Prods., 759 F. 2d 1053, 1063-64 (2d Cir. 1985) . Thus, the Court finds in favor of plaintiff with respect to its trade secret claim.[4]

B. Unfair Competition & Misappropriation: Preemption

45. Softel claims that defendants unfairly competed with Softel by falsely claiming that Dragon's products were produced by Dragon and failing to attribute authorship to Softel. Defendants contend that plaintiff's unfair competition claim is preempted by federal copyright law.

46. Section 301 of the Copyright Act, 17 U.S.C. 301 (1988) sets forth the following two conditions which must be satisfied for preemption of a right under state law: "(1) the work in which the right is asserted must be fixed in tangible form and come within the subject matter of copyright as specified in § 102, and (2) the right must be equivalent to any of the rights specified in § 106. 11 Baltimore Orioles v. Major League Baseball Players Ass'n, 805 F.2d 663, 674 (7th Cir. 1986), cert. denied, 480 U.S. 941 (1987); Universal City Studios, Inc. v. T-Shirt Gallery Ltd., 634 F. Supp. 1468, 1474-75 (S.D.N.Y. 1986).

47. It is undisputed that the first condition for preemption is satisfied since computer programs are copyrightable and plaintiff's Copyright Collection is a work fixed in a tangible medium.

48. As to the second condition for preemption, a state law right is equivalent if under state law the act of reproduction, performance, distribution or display will in itself infringe the state created right. See Mayer v. Josiah Wedgwood & Sons, Ltd., 601 F. Supp. 1523, 1535 (S.D.N.Y. 1985) ; accord Baltimore Orioles, 805 F.2d at 678 n.26. A state law claim is not preempted, however, if certain additional elements are required to constitute the state cause of action. See id.. The "extra element" must be "one which changes the nature of the action so that it is qualitatively different from a copyright infringement claim. Elements such as awareness or intent, which alter the action's scope but not its nature, will not save it from preemption under S 301." Mayer, 601 F. Supp. at 1535 (emphasis in original).

49. It is well established that plaintiff's unfair competition claim is preempted by federal copyright law to the extent that it seeks protection against copying of plaintiff's work. See Walker v. Time Life Films, Inc., 784 F.2d 44, 53 (2d Cir. 1986); Warner Bros. v. American Broadcasting Cos., 720 F.2d 231, 247 (2d Cir. 1983). Thus, plaintiff's unfair competition claim is preempted insofar as plaintiff's

claim is based on defendants' copying of plaintiff's work.

50. However, an unfair competition claim which alleges a tort of reverse passing off is not preempted by state law. See Warner Bros., 720 F.2d at 247. In this case, plaintiff's unfair competition claim is based on the tort of reverse passing off as plaintiff claims that the defendants falsely claimed that its products were their own and failed to attribute authorship to Softel. The Court finds that plaintiff's claim of unfair competition fails on its merits for the same reasons plaintiff's claim under section 43(a) of the Lanham Act failed.

51. Plaintiff's misappropriation claim asserts that Dragon "appropriated ["Softel's product"] to their own benefit and profit without payment of license fees to Softel." Amended Complaint, at 1 98. The misappropriation tort encompasses "'any form of commercial immorality,' . . . it is taking 'the skill, expenditures and labors of a competitor' and 'misappropriate[ing] for commercial advantage of one person . . . a benefit or property right belonging to another. '" Standard & Poor Is Corp. v. Commodity Exchange, 683 F.2d 704, 710 (2d Cir. 1982) (citations omitted). "Commercial immorality" is not an element that is sufficiently "different" to prevent preemption. See, e.g., Galerie Furstenberg v. Coffaro, 697 F. Supp. 1282, 1291 (S.D.N.Y. 1988); Universal City Studios, 634 F. Supp. at 1495; Mayer, 601 F. Supp. at 1535. Commercial immorality merely places a particular value judgment on the same misconduct which copyright law is designed to guard against. See Mayer, 601 F. Supp. at 1535.

52. Plaintiff first argues that its misappropriation claim is not preempted by federal copyright law because the tort of misappropriation serves a different goal than federal copyright law. Plaintiff's argument is without merit as it fails to address the extra element test which is the prevailing test in this Circuit. In any event, contrary to plaintiff's contention, both causes of action share the same goal of "balancing the need to provide economic incentives for authoring against the preservation of the freedom to imitate." Nash v. CBS, Inc., 704 F. Supp. 823, 834 (N.D. Ill. 1989), aff'd, 899 F.2d 1557 (7th Cir. 1990).

53. Plaintiff's second argument is that its misappropriation claim falls within the "hot news" exception recognized in the House Judiciary Committee Report on the 1976 Amendments to the Copyright Act. The House Report states that "'state law should have the flexibility to afford a remedy . . . against a consistent pattern of unauthorized appropriation by a competitor of facts (i.e., not the literary expression) constituting 'hot news.'. . .'" 704 F. Supp. at 834

(quoting H. Report No. 1476, reprinted at 17 U.S.C.A. 301). As an example of hot news, the House Report referred to the misappropriation claim asserted in International News Serv. v. Associated Press, 248 U.S. 215 (1918). In International News, defendant intercepted the lines of another wire service and reported them in its own competing news service. The House Report indicated that today "hot news" could include misappropriation of data from another's computerized scientific, business or financial data bases. See id.

54. Plaintiff's misappropriation claim is based solely on defendants' copying of its computer code. Unlike the examples cited in the House Report, plaintiff's claim does not involve reproduction of facts and data as opposed to their expression. In this case, plaintiff's cause of action is based wholly on a right protected by federal copyright law. Accordingly, plaintiff's misappropriation claim is dismissed.

IV. Intent

55. Another issue in the trial of this action is whether defendants willfully violated plaintiff's rights. The Court finds that Darsee intentionally gained access to plaintiff's image retrieval routines. See infra Findings of Fact, at 65. Darsee's testimony that he thought he was entitled to use the code, despite the copyright notice he saw in the code is similarly not worthy of belief. See infra Conclusions of Law, at 20. Accordingly, the Court finds that defendants acted willfully in utilizing plaintiff's image retrieval routines.

V. Damages

56. The issue of intent is relevant with respect to plaintiff's claim that it is entitled to punitive damages and attorney's fees. This is one of the issues stated in the joint pre-trial order. See Pre-Trial Order, 87 Civ. 0167 (JMC), at 14 (S.D.N.Y. Mar. 6, 1990).

A. Federal Copyright Law

57. Turning first to plaintiff's claim of copyright infringement, section 504(c) of the Copyright Act allows the plaintiff to elect statutory damages instead of actual damages and profits. See 17 U. S. C. Sec. 504 (c) (1) (1988) . In addition, the court has discretion to increase the award of statutory damages where the infringement was committed willfully. See id. Sec. 504 (c) (2) . Under section 505 of the Copyright Act the court may also award reasonable attorney's fees to the prevailing party. [5] See id Sec. 505. An award of either of these damages, however, is prohibited by section 412 where

(1) any infringement of copyright in an unpublished work commenced before the effective date of its registration; or

(2) any infringement of copyright commenced after first publication of the work and before the effective date of its registration, unless such registration is made within three months after the first publication of the work.

17 U.S.C. § 412 (1988). Thus, to obtain statutory damages or attorney's fees the copyright owner must have registered the copyright prior to the infringement. See, e.g., Cable/Home Communication Corp. v. Network Prods., Inc., 902 F.2d 829, 851 (11th Cir. 1990); Evans Newton, Inc. v. Chicago Sys. Software, 793 F.2d 889, 897 (7th Cir.), cert. denied, 479 U.S. 949 (1986); Eden Toys, Inc. v. Florelee Undergarment Co., 697 F.2d 27, 33 (2d Cir. 1982).

58. In this case, plaintiff's copyrighted work was first published in the Melanoma program in May 1985. It was again published in its present form in the Kaposi program in June 1985. Plaintiff's work was not effectively registered until May 22, 1986, which is more than three months after the first publication of the work.

Defendants' infringement commenced when it delivered Hairy Cell Roche on March 10, 1986--before the effective date of registration. Section 412 precludes plaintiff from recovering either statutory damages or attorney's fees although subsequent acts of infringement occurred after the effective date of registration. See Singh v. Famous Overseas, Inc., 680 F. Supp. 533, 536 (S.D.N.Y. 1988).[6] Thus, the Court finds that plaintiff may not recover statutory damages or attorney's fees. Plaintiff is also not entitled to punitive damages with respect to its copyright claim. See Oboler v. Goldin, 714 F.2d 211, 213 (2d Cir. 1983).

B. Trade Secret

59. Under New York law, punitive damages may be granted where "defendant's conduct has constituted 'gross, wanton, or willful fraud or other morally culpable conduct' to an extreme degree." Smith v. Lightning Bolt Productions, Inc., 861 F.2d 363, 371 (2d Cir. 1988) (quoting Borkowski v. Borkowski, 39 N.Y.2d 982, 983, 355 N.E.2d 287, 287, 387 N.Y.S.2d 233, 233 (1976)). The evidence established that Darsee utilized plaintiff's image retrieval routines despite the copyright notice plaintiff had inserted in the code. Darsee argues that while his use was deliberate, it was not in bad faith because he in good faith believed that he was entitled to use the routines. See Roy Expert, Inc. v. Columbia Broadcasting

System, Inc., 503 F. Supp. 1137, 1155 (S.D.N.Y. 1980), aff'd, 672 F.2d 1095 (2d Cir.), cert. denied 459 U.S. 826 (1982).

60. Each of defendants' justifications for using plaintiff's image retrieval routines is not credible. Defendants' claim that they believed they were entitled to use the code because they had paid for it is unbelievable in light of plaintiff's insertion of a copyright notice in the code and the Sorbinil invoice which limited used of the code to the Sorbinil project. Dragon's belief that it could utilize plaintiff's code because it believed that Fiondella was its employee is also unpersuasive given that Fiondella repeatedly refused to provide Dragon with his code. Finally, defendants' claim that they believed in good faith that the computer code was a joint work under the Copyright Act is similarly unpersuasive given Fiondella's efforts to maintain the secrecy of his code.

Accordingly, the Court finds that defendants acted willfully and in bad faith, thereby entitling plaintiff to punitive damages with respect to its trade secret claim.

CONCLUSION

After a bench trial on plaintiff's claims, the Court finds in favor of plaintiff with respect to its first and fifth claims for relief in the Amended Complaint to the extent these claims are based on the Hairy Cell Roche and Low Back Pain programs. The Court further finds that plaintiff may recover punitive damages under its state law claim stated in its fifth claim for relief. Plaintiff's claim for attorney's fees, statutory damages and punitive damages with respect to its claim under its first claim for relief is denied. Plaintiff's second, third, fourth, and sixth [7] claims for relief are dismissed. Plaintiff's motion for further discovery with respect to the programs Advanced Cardiology Lab, Expert Consultations, Unasyn Oral Followup and Benign Prostatic Hypertrophy is denied.

If the parties are able to agree, they shall submit to the Court the amount of plaintiff's damages. If the parties are unable to agree, they are directed to submit to the Court a joint pre-trial order concerning the damages phase of this trial no later than July 24, 1992.

SO ORDERED.

/s/
JOHN M. CANNELLA

United States District Judge

Dated: New York, New York

June 29, 1992

FOOTNOTES

1.The court found Cain to be qualified as an expert to analyze the graphic image retrieval routines and structure and logic of the alleged infringing programs. Plaintiff was precluded from offering an expert at trial. See Memorandum and order, 87 Civ. 0167 (JMC) (S.D.N.Y. Oct. 23, 1990). Paul Fiondella testified in great length concerning highly technical computer programming issues and Cain stated that in his opinion he believed that Fiondella testified almost entirely as an expert. See Trial Transcript at 1636.

2. At trial, the Court granted plaintiff's motion to conform its pleading to the proof.

3. To the extent that plaintiff's claim is that the Hairy Cell Expert Module utilizes plaintiff's image retrieval routines, assuming arguendo that they were used, Dragon's failure to credit Fiondella with authorship of the image retrieval routines does not violate section 43(a) of the Lanham Act. The image retrieval routines, if utilized, are de minimis when considered in light of the purpose and value of the Expert System.

4.Although defendants do not contend that plaintiff's trade secret claim is preempted, the Court notes that such an argument would be unavailing. Since plaintiff established at trial that defendants used plaintiff's image retrieval routines as a result of wrongful acquisition, the trade secret claim is not preempted by federal copyright law. See Computer Assocs., slip op. at 57.

5.Plaintiff's request that the Court not consider its entitlement to attorney's fees at this time is denied. Plaintiff has not given any reason for such a request. Moreover, the issue of whether plaintiff is entitled to attorney's fees is within he scope of the joint pre-trial order as an entitlement to attorney's fees is based on defendants' intent.

6.Plaintiff apparently recognizes that it is not entitled to attorney's fees under the Copyright Act. In its motion for leave to amend its complaint to add a claim under section 43(a) of the Lanham Act, plaintiff stated that "[b]ecause defendants' infringement commenced prior to registration of plaintiff's copyright, plaintiff is not entitled to attorney's fees under the Copyright Act of 1976. See Plaintiff's Reply

Memorandum in Support of its Motion to Amend the Complaint (S.D.N.Y. July 20, 1987).

7. At trial, plaintiff consented to dismissal of its sixth claim for relief.

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

SOFTEL, INC.,

Plaintiff,

- against -

MEMORANDUM OPINION AND ORDER
87 Civ. 0167 (MGC)

DRAGON MEDICAL AND SCIENTIFIC COMMUNICATIONS LTD., DRAGON MEDICAL AND SCIENTIFIC COMMUNICATIONS, INC., JOHN R. DARSEE, H. EUGENE HODGE, NINA ROMANOFF, HOFFMAN LAROCHE, INC. PFIZER, INC., and PFIZER PHARMACEUTICALS, INC.,

Defendants.

APPEARANCES:

BROWN & SEYMOUR
Attorney for Plaintiff
25 West 43rd Street, Room 2102
New York, New York 10036

By: Whitney North Seymour, Jr., Esq.
Craig A. Landy, Esq.

CHARLA R. BIKMAN, Esq.
Attorney for Plaintiff
105 Duane Street, Suite 46C
New York, New York 10007
(212) 346-9774

STROOCK & STROOCK & LAVAN
Attorneys for Defendants
7 Hanover Square
New York, New York 10004-2594

By: Bruce H. Schneider, Esq.
Gordon Kessler, Esq.

JAFFE & ASHER
Attorneys for Defendants
52 Vanderbilt Avenue
New York, New York 10017

By: William A. Rome, Esq.

CEDARBAUM, J.

Softel, Inc. ("Softel"), a company that develops and sells computer graphics products, sues Dragon Medical and Scientific Communications, Inc. ("Dragon") and some of Dragon's employees for copyright and trademark infringement, misuse of trade secrets and unfair competition. [1] From April 23, 1991 to May 13, 1991, Judge Cannella held a bench trial limited to liability issues, in which he found defendants Dragon and John Darsee [2] liable for copyright infringement and misuse of trade secrets, and found that the misuse of trade secrets was willful and in bad faith, entitling plaintiff to punitive damages. See Softel, Inc. v. Dragon Medical & Scientific Communications, Inc., No. 87 Civ. 0167 (JMC), 1992 WL 168190 (S.D.N.Y. June 29, 1992) [hereinafter "Softel I"]. Familiarity is assumed with Judge Cannella's decision which is the law of this case.

From May 8, 1995 to May 11, 1995, I held a bench trial to determine the amount of damages for which defendants are liable. After examining the documents, observing the demeanor of the witnesses, and considering the plausibility and credibility of their testimony, I make the following findings of fact and conclusions of law.

Findings of Fact

The Parties

1. Plaintiff Softel is a New Hampshire corporation engaged in the business of developing and selling computer graphics products to users of IBM compatible computers. Paul Fiondella is the president and sole shareholder of Softel. (Softel I, Findings of Fact ("F.F.") Par. 1.)

2. Defendant Dragon was a New Jersey corporation engaged in the business of designing interactive computer programs to present medical and scientific information until it ceased doing business on January 31, 1992. (See Softel I, F.F. Par. 2; Tr. at 380.)

3. Defendant John R. Darsee was a medical writer for Dragon and the director of its interactive department. (Softel 1, F.F. 1 Par. 6.)

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[1] Although Dragon Medical and Scientific Communications, Ltd. is named as a party in the caption, no entity has ever existed under that name.

[2] Judge Cannella granted judgment as a matter of law to defendants Hodge and Romanoff at the conclusion of plaintiff's case. The Pfizer defendants and defendant Hoffman LaRoche settled with plaintiff before trial.

Background Facts Regarding Liability

4. In November 1984, Darsee purchased Videogram 2.0, a "paint-and-draw" computer graphics program, from Softel. (Softel 1, F.F. Pars. 15, 17, 21.) Videogram 2.0 did not enable the user to incorporate images drawn with it into software the user was writing.(Softel I, F.F. Par. 17)

5. In January 1985 through June 1985, Dragon hired Fiondella towrite code that would display graphics images created in Videogram 2.0 in several of Dragon's interactive programs. (the "image retrieval routines") (Softel I, F.F. Pars. 26-66, 75.)

6. Fiondella never gave Dragon the source code he had written. Rather he gave Dragon only the "executable" object code. (Softel I, F.F. Pars. 28, 44, 51, 60, 75.)

7. Darsee somehow gained access to Softel's source code and used the code to retrieve and display graphics images in two Dragon interactive programs, Hairy Cell Roche and Low Back Pain. (Softel I, F.F. Pars. 62, 65, 70.)

8. On May 22, 1986, plaintiff sought to register a copyright for certain computer code (the "Copyright Collection"). Plaintiff sought to register the following: (1) a program entitled "SHOWPIX.bas," which includes code similar to that of certain image retrieval routines; (2) a collection of object code routines called "8068/8 Support Routines," which includes the five assembly code routines used to retrieve and display Videogram images; and (3) source code for one of the projects plaintiff did for Dragon. Plaintiff was granted a Certificate of Copyright, Registration No. TXu 236 931, for the Copyright Collection, effective May 22, 1986. (Softel I, F.F. Par. 77; Plaintiff's Liability Trial Exhibit ("PLX") 34.)

9. In 1988, Dragon utilized a different paint-anddraw program (called "Dr. Halo") instead of plaintiff's Videogram software in producing several interactive programs. (Softel I, F.F. Pars. 101-103.) Because the images used in those programs were stored in a different format for use with a different type of graphics card, those programs did not use the image retrieval routines. (Softel I, F.F. Par. 103.) The programs Dragon produced in 1988 were not in any way derived from Softel"s copyrighted work. (Softel I, F.F. Par. 115.)

Plaintiff's Lost Profits due to Defendants' Use of Image Retrieval Routines

10. Defendants presented evidence that plaintiff charged a license fee of $2,000 for the use of the image retrieval routines in

another program and that plaintiff offered Dragon a contract, which Dragon refused, pursuant to which Dragon would have paid plaintiff $3,500 per computer program to license code previously developed by plaintiff. (Tr. at 292-99; PLX 63, 66.)

11. Evidence was also presented that Dragon paid license fees on two occasions to Media Cybernetics for the use of code similar to that of the image retrieval routines in connection with images created in the Dr. Halo paint-and-draw program. (Tr. at 598-606.) In 1987, Dragon paid Media Cybernetics $10,000 for a license to use code that retrieved graphics images in ten Dragon software packages. (Plaintiff's Damage Trial Exhibit ("PDX") D-18.) In 1989, Dragon paid Media Cybernetics $8,200 for a license to use such code in an unlimited number of programs. (Tr. at 598.)

12. Evidence was presented at trial that a license for the use of source code may be substantially more expensive than a license for the use of the executable code. For example, plaintiff's expert testified that he obtained a license to use the source code of the UNIX operating system for $43,000, but an executable copy of the software was available for $600. (Tr. at 60.) This license did not allow the user to incorporate the UNIX software into its own products. (Tr. at 61.) No evidence was presented as to how much a source code license would cost for a program that performed functions similar to those of the image retrieval routines.

13. Based on the evidence presented at trial, I find that plaintiff's lost profits are $7,000, that is, the amount plaintiff would have charged defendants under its proposed agreement for the use of the image retrieval routines in two programs. Although a source code license fee might have been considerably higher, I find that it is unlikely that Dragon would have paid such a high fee considering the availability of other programs which performed the same functions as the Videogram image retrieval routines. (See Defendants' Damage Trial Exhibits ("DDX") AT & AU; Tr. at 587-615.) Dragon used plaintiff's source code only to produce the Hairy Cell and Low Back Pain programs. It did not use the source code for any other purpose. Essentially, the value to Dragon of the use of plaintiff's code was the saving of the license fee it would have paid to plaintiff for the use of the image retrieval routines.

Dragon's Profits from Programs Utilizing Infringing/ Misappropriated Code

14. Dragon's gross revenue from the Hairy Cell Roche program was $92,500. (DDX A; PDX D-2.) Dragon's gross revenue from the Low Back Pain program was $85,415.32. (DDX B; PDX D-

2.)

15. Dragon incurred direct costs of $39,108-96 for the production of the Hairy Cell Roche program and $32,630.36 for the production of the Low Back Pain program. (DDX A & B.) [3] These costs included expenses for video copying and editing, audio recording, equipment rental, freelance graphic artists, a background music composer and actors. (Tr. at 391-93.)

16. In addition to out-of-pocket expenses, Dragon incurred direct labor costs of $31,001.00, indirect labor costs of $261.07 and overhead expenses of $11,616.00 in connection with the production of Hairy Cell Roche, and direct labor costs of $7,156.38, indirect labor costs of $1,112.27 and overhead expenses of $2,968.05 in connection with Low Back Pain. (PDX D-2.) Direct labor was computed on an employee-by-employee basis as an allocation of each employee's salary based on hours worked on a project as a percentage of his or her total hours worked on all projects. (Tr. at 394.) Indirect labor costs were computed by allocating year-end employee bonuses based upon the direct labor allocation. (Id.) overhead expenses were also allocated to each project based on the direct labor expended on that project. (Id.) Overhead expenses included only the portion of rent, maintenance and utilities associated with production and did not include the portion of those expenses associated with administration. (Tr. at 395-96.)

17. Dragon also received $31,800.02 in revenues by providing "exhibit support" when the Hairy Cell program was shown at some exhibitions. (PDX D-2; Tr. at 400.) The expenses associated with the exhibit support were $25,676.17 in direct costs, $1,402.89 in direct labor, $251.76 in indirect labor and $769.88 in overhead. (PDX D-2.)

18. The computer code of Softel's image retrieval routines comprises a relatively small portion of the total number of lines and memory (measured in bytes) in the Hairy Cell and Low Back Pain programs. Softel's code comprises 15.8% of the lines and 6.1% of the bytes in the Low Back Pain program and comprises 7.8% of the

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[3] PDX D-2 lists the direct costs for the Low Back Pain program as $33,472.36. Because defendants have the burden of showing the costs that should be taken into account in assessing damages, see C.L. Par. 1 infra, I will use the lesser amount shown in DDX B.

bytes in the Hairy Cell program. [4] (Tr. at 566, 571, 577-78; DDX AP-1, AP-2, AR.) If one considers only the portions of Softel's code actually called and used in the program, those percentages are further reduced. (Tr. at 571, 576-77; DDX AP-1, AP-2, AR.)

19. In determining the portion of profits attributable to the image retrieval routines, it is necessary to examine not only the quantity of the infringed code in relation to the entire program, but also the qualitative importance of that code. See Computer Assocs. Int'l, Inc. v. Altai, Inc., 775 F. Supp. 544, 571-72 (E.D.N.Y. 1991), aff'd in part, vacated in part, 982 F.2d 693 (2d Cir. 1992). Although defendants presented evidence that plaintiff's image retrieval routines comprised only a small part of the Hairy Cell Roche and Low Back Pain programs, that evidence is not wholly determinative of the contribution the image retrieval routines made to the program.

20. Because the routines made it possible to show quickly graphics images on the screen, they were an integral part of the Hairy Cell Roche and Low Back Pain interactive computer programs. (Tr. at 28-29, 156, 490-91.)

21. Dragon's sales of these programs are attributable not only to the use of the graphics images, but also to the overall design and the subject matter of the presentation, which were developed entirely by Dragon. (Tr. at 349, 446-47, 450-51, 493-96.) In addition, some of the images used in Hairy Cell were brought up to the screen from videodisc, and some graphics images used in Low Back Pain were in Dr. Halo format. (Tr. at 445-46, 455-56; DDX M.) The display of these images did not employ the image retrieval routines. (Tr. at 450, 455-56, 492.)

22. Taking all of these factors into account, I find that 50 percent of Dragon's profits from the Hairy Cell and Low Back Pain programs are attributable to plaintiff's image retrieval routines.

Dragon's Financial Condition

23. In the fiscal year ending January 31, 1987, Dragon's Net Income was $58,798. (DDX J.)

24. Dragon ceased doing business on January 31, 1992 after its board of directors decided to dissolve the company. (Tr. at 380; PDX D-4.)

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[4] Defendants' expert was unable to determine the percentage of lines of Softel code in the Hairy Cell program because he did not have the source code to that program. (Tr. at 575.)

25. As of May 10, 1995, Dragon had collected all debts owed to it, and had outstanding expenses of $550 per three-month period and deferred compensation owed to Darsee and Eugene Hodge, Dragon's president. (Tr. at 405-06, 411.)

26. As of May 10, 1995, Dragon had two bank accounts with a combined balance of $16,187.26. (Tr. at 406-07; DDX AX & AY.)

Darsee's Financial Condition

27. Dragon paid Darsee $69,249.98 in salary and bonus in 1986 and $72,000 in 1987.

28. Darsee is currently employed by Scientific Information Systems ("SIS"), a company that designs and produces programs that communicate product information or education. (Tr. at 478-80.) The shares of SIS are owned by Darsee's wife, his oldest daughter, and one other person. (Tr. at 486.)

29. In 1993, SIS paid a salary of $20,500 to Darsee and a salary of $83,000 to Darsee's wife. (DDX Y-9.) In 1993, Darsee was also paid $70,250 by Cypress Scientific Pres., Inc. and his wife was paid $61,745 by Hackensack Medical Center. (Id.) Darsee has not yet filed an income tax return for 1994. (Tr. at 479; DDX Y-10.)

30. Darsee's assets are the following: a checking account with a balance of between $4,000 and $6,000, a term life insurance policy, a retirement account worth approximately $31,000, and a joint tenancy interest in the house that his wife bought in 1985. (Tr. at 479.) The house was valued at $248,000 in 1991, and was subject to mortgages totaling $169,841 as of June, 1993. (Tr. at 476-77.) Darsee was made a joint tenant in 1989 when he and his wife decided to refinance their mortgage and the bank conditioned the refinancing upon the deed being in both of their names. (Tr. at 475.)

31. Darsee's mortgage payments are approximately $2,000 per month. (Tr. at 480.) Monthly payments on his car lease are $300. (Tr. at 481.) Darsee and his wife provide for three children, aged 23, 16 and 6. (Tr. at 471-72.) This year they paid the costs of their oldest child's master degree in education at Fordham University, which amounted to $19,000, and leased a car for her commute to and from school. (Tr. at 481.) Darsee's 16-year-old child has Down's Syndrome, and Darsee and his wife incur additional expenses associated with that child's special health and educational needs. (Tr. at 482-85.)

32. Darsee does not have any indemnification agreement with Dragon. (Tr. at 433.)

Conclusions of Law

Copyright Damages

1. Section 504(b) of the Copyright Act provides:

> **Actual Damages and Profits.** – The copyright owner is entitled to recover the actual damages suffered by him or her as a result of the infringement, and any profits of the infringer that are attributable to the infringement and not taken into account in computing the actual damages. In establishing the infringer's profits, the copyright owner is required to present proof only of the infringer's gross revenue, and the infringer is required to prove his or her deductible expenses and the elements of profit attributable to factors other than the copyrighted work.

2. Plaintiff argues that its actual damages are its costs of developing the image retrieval routines. The only case plaintiff cites in support of the proposition that development costs are an appropriate measure of copyright damages is Harris Market Research v. Marshall Marketing and Communications, Inc., 948 F.2d 1518, 1524 (10th Cir. 1991). In that case, the Tenth Circuit held that it was not reversible error for the trial court to have admitted evidence on plaintiff's development costs where the court gave a jury instruction, to which defendant did not object, that copyright infringement damages may include plaintiff's unrecovered costs. That case is not persuasive authority for the thesis that the plaintiff in this case is entitled to its development costs as part of its actual damages.

3. Although there may be situations in which it is appropriate for a plaintiff who is successful on a copyright infringement claim to recover development costs as part of its actual damages, the facts of this case do not present such a situation. Defendants' use of plaintiff's copyrighted computer code did not prevent plaintiff from profiting from use of the code except to the limited extent of preventing plaintiff from receiving license fees from Dragon. (See Softel I, Conclusions of Law ("C.L.") Par. 21.) In fact, plaintiff used some of the code contained in the image retrieval routines in other programs it sold. (Tr. at 172-75.) Therefore, plaintiff's costs in developing the image retrieval routines cannot be considered an "unrecovered cost." Plaintiff did not present evidence that any of the image retrieval routines was developed specifically for Dragon and was not marketable to others.

4. Plaintiff's actual damages from the copyright infringement

are the profits it lost as a result of defendants' infringement. In this case, plaintiff's losses are measured by the royalty payments it would have received from defendants for the use of the source code for the image retrieval routines, or $7,000. See Findings of Fact Par. 13, supra.

5. In addition to lost profits, plaintiff is entitled to recover defendants' profits earned as a result of the infringement.

6. Plaintiff urges that because Judge Cannella determined that the infringement was willful, defendants should not be able to deduct any expenses in calculating profits. Plaintiff's view is supported by neither a plain reading of the Copyright Act nor decisions in this Circuit. See Sheldon v. Metro-Goldwyn Pictures Corp., 106 F.2d 45 (2d Cir. 1939), aff'd, 309 U.S. 390 (1940); Warner Bros., Inc. v. Gay Toys, Inc., 598 F. Supp. 424 (S.D.N.Y. 1984); RSO Records, Inc. v. Peri., 596 F. Supp. 849 (S.D.N.Y. 1984).

7. Courts have allowed the deduction of a variety of expenses, including an allocation of fixed cost overhead expenses associated with the production of an infringing product. See In Design v. K-Mart Apparel Corp., 13 F.3d 559, 565-66 (2d Cir. 1994); Sheldon, 106 F.2d at 54; Warner Bros. 598 F. Supp. at 428-29. Plaintiff did not challenge the validity or method of computation of any of Dragon's claimed expenses. (See Tr. at 389.) Therefore, because defendants have offered a fair and reasonable formula for determining allocation of fixed costs such as overhead and salaries, they are entitled to the deduction of the amounts claimed as expenses from gross revenues in computing profits under Section 504(b).

8. Plaintiff correctly notes that an increase in defendants' good will resulting from their infringement may be considered a "profit" for which the plaintiff is entitled to damages under Section 504(b). See Business Trends Analysts, Inc. v. Freedonia Group, Inc., 887 F.2d 399, 404 (2d Cir. 1989). However, plaintiff did not present evidence supporting its contention that defendants' good will was enhanced as a result of their infringement of plaintiff's image retrieval routines. Darsee testified at trial that he had not shown the Hairy Cell program to any prospective clients. (Tr. at 502.) Although Darsee did show the Hairy Cell program at a meeting of the International Interactive Computer Society in November 1986 (Softel I, F.F. Par. 72), plaintiff did not present any evidence that Dragon obtained new customers or increased its good will with existing customers as a result of that demonstration. (See also Softel I, F.F.

Par. 98.)

Trade Secret Damages

9. Damages for misappropriation of a trade secret may be measured by either plaintiff's losses or the profits or other benefits gained by defendants through the use of the trade secret. See A.F.A. Tours, Inc. v. Whitchurch, 937 F.2d 82, 87 (2d Cir. 1991); Timely Prods. Corp. v. Arron, 523 F.2d 288, 304 (2d Cir. 1975); A.H. Emery Co. v. Marcan Prods. Corp., 268 F. Supp. 289, 302 (S.D.N.Y. 1967), aff'd, 389 F.2d 11 (2d Cir.), cert. denied 393 U.S. 835 (1968); Ewen v. Gerofsky, 86 Misc.2d 913, 382 N.Y.S.2d 651, 655 (Sup. Ct. N.Y. Cty. 1976); 3 Roger M. Milgram, Milgram on Trade Secrets Sec. 15.02[3][c] (1994).

10. Another method of computing damages for trade secret misappropriation is the assessment of a reasonable royalty for the use of the trade secret. See University Computing Co. v. Lykes-Youngstown Corp., 504 F.2d 518, 536 (5th Cir. 1974); Vitro Corp. v. Hall Chemical Co., 292 F.2d 678, 681-83 (6th Cir. 1961); 3 Milgram on Trade Secrets Sec. 15.02[3][e]. Both plaintiff and defendants suggest in their pre-trial briefs that a "reasonable royalty" or license fee determination might be an appropriate measure of damages. (See Plaintiff's Trial Mem. on Damages, at 18-19; Defendant's Mem. in Opp. to Plaintiff's Mot. for Summ. J., at 17.)

11. Plaintiff contends that the measure of damages should be the costs of developing the program times a multiplier which takes into account the probable return on the investment in product development. Plaintiff cites University Computing in support of its method of computation. In University Computing, however, the court did not apply such a measure. It did discuss the various methods of measuring damages for trade secret misappropriation and noted that development costs are a factor to be considered in determining what would have been a reasonable royalty for the use of a misappropriated trade secret. University Computing, 504 F.2d at 538. The court noted that the application of the "reasonable royalty" measure of damages in lieu of the usual approach of measuring damages by defendants' profits was appropriate where defendants made no profits from the misappropriation. Id. at 536. If defendants had made a profit, the court indicated that it would have measured damages by the profits gained by defendants through the use of plaintiff's trade secret. Id.

12. The appropriate measure to use in computing trade

secret damages in this case is the amount of defendants' profits. [5]

13. In computing defendants' profits from the trade secret misappropriation, defendants are entitled to set off the costs associated with the production of the product that incorporates the misappropriated trade secret. See Elnicky Enterprises v. Spotlight Presents, Inc., 213 U.S.P.Q. 855, 863 (S.D.N.Y. 1981), accounting settled, 213 U.S.P.Q. 955 (S.D.N.Y. 1982); David Fox & Sons, Inc. v. King Poultry Co., 30 A.D.2d 789, 292 N.Y.S.2d 21, 23 (1st Dep't 1968) (unfair competition).

14. In measuring defendants' profits, it is also appropriate to apportion damages based on the role plaintiff's trade secret played in the commercial success of defendants' product. See University Computing, 504 F.2d at 539.

15. Plaintiff argues that it should be awarded damages based on the competitive advantage gained by Dragon in being able to market its interactive programs with graphics displays earlier than competitors. Although such gains could be brought into the calculation of damages, plaintiff did not prove that Dragon gained any time advantage over competitors. Dragon's expert on computer graphics programs testified that other graphics software was available at the time that Dragon developed the Hairy Cell and Low Back Pain programs which allowed users to incorporate images made with a paint-and-draw program into the users' own programs. (Tr. at 583-609.) Plaintiff did not proffer any contradictory testimony as to the availability of programs with functionality similar to that of the Videogram image retrieval routines.

16. Therefore, the compensatory damages based on defendants' profits earned from the misappropriation of plaintiff's trade secret are the same amount as those awarded for defendants' profits gained from copyright infringement.

17. Because defendants' profits from copyright infringement and trade secret misappropriation are coextensive in this case, plaintiff is entitled to only one recovery of defendants' profits. See

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[5] This measure results in a larger recovery for plaintiff than the reasonable royalty method since that measure would be essentially the same as the lost profits measure conducted for the copyright infringement damages. At any rate, the measure used makes little difference, since plaintiff cannot receive a double recovery when the damages are coextensive. See Computer Assocs. Int'l, Inc. v. Altai, Inc., 982 F.2d 693, 720 (2d Cir. 1992).

Computer Assocs. Int'l. Inc. v. Altai, Inc., 982 F.2d 693, 720 (2d Cir. 1992).

Prejudgment Interest

18. Prejudgment interest with respect to the trade secret misappropriation claim is determined by New York law. N.Y.Civ. Prac. L. & R. Sec. 5001(a) provides:

> Interest shall be recovered upon a sum awarded . . . because of an act or omission depriving or otherwise interfering with title to, or possession or enjoyment of, property, except that in an action of equitable nature, interest and the rate and date from which it shall be computed shall be in the court's discretion.

19. Plaintiff and defendants agree that trade secret misappropriation is "an act . . . interfering with title to, or possession or enjoyment of, property," and, is therefore, within Section 5001(a). (See Defendants' Post-Trial Proposed Findings of Fact and Conclusions of Law Regarding Damages Par. 163; Plaintiff's Trial Mem. on Damages, at 28.)

20. Defendants argue that because disgorgement of profits is an equitable remedy, the court has discretion whether to award prejudgment interest. However, where "(t]he cause of action and damages requested are essentially legal in nature, . . . the court must apply the statutory rate of interest." Action S.A. v. Marc Rich & Co., 951 F.2d 504, 508-09 (2d Cir. 1991). Because plaintiff's claim for damages for trade secret misappropriation is essentially legal in nature, prejudgment interest on the trade secret damages must be awarded pursuant to Section 5001(a). Even if the claim were held to be equitable, I would exercise my discretion to grant prejudgment interest in this case.

21. The issue of the permissibility of prejudgment interest under the current Copyright Act, which neither expressly allows nor prohibits such an award, is unresolved in the Second Circuit. In Design v. K-Mart Apparel Corp., 13 F.3d 559, 569 (2d Cir. 1994). If such an award is permitted, the award of prejudgment interest is discretionary. Id.

22. In the exercise of my discretion, I award plaintiff prejudgment interest on the lost profits portion of the copyright infringement damages because prejudgment interest on lost profits compensates plaintiff for loss of the use of those funds. See United States Naval Inst. v. Charter Communications, Inc., 17 U.S.P.Q.2d 1063, 1067 (S.D.N.Y. 1990) (awarding prejudgment interest on

portion of award representing plaintiff's lost profits, but not on portion of award representing defendant's profits from infringement), aff'd in part, rev'd in part, 936 F.2d 692 (2d Cir. 1991); see also Bourne Co. v. Walt Disney Co., 31 U.S.P.Q.2d 1858, 1860-61 (S.D.N.Y. 1994) (awarding prejudgment interest on stipulated damages settlement).

23. N.Y. Civ. Prac. L. & R. Sec. 5001(b) provides:

> Interest shall be computed from the earliest ascertainable date the cause of action existed, except that interest upon damages incurred thereafter shall be computed from the date incurred. Where such damages were incurred at various times, interest shall be computed upon each item from the date it was incurred or upon all of the damages from a single reasonable intermediate date.

24. A claim exists for trade secret misappropriation when (1) defendants possessed a trade secret, and (2) defendants used that trade secret in breach of an agreement. confidence, duty, or as a result of discovery by improper means. (Softel I, C.L. Par. 41.)

25. Plaintiff urges that interest should be computed from the date upon which Darsee first gained access to the source code of the image retrieval routines. However, the cause of action did not exist until defendants both possessed the code and used it. Therefore, interest should be computed from the dates upon which plaintiff's code was incorporated into defendants' programs. Because neither side presented evidence as to when Darsee incorporated plaintiff's code, the earliest ascertainable dates of the existence of the cause of action are the dates upon which the programs were completed. The Hairy Cell program was completed on March 10, 1986, and the Low Back Pain program was completed on May 23, 1986. (Softel I, F.F. Pars. 72, 74.) Therefore, interest on damages arising from the Hairy Cell program should be computed from March 10, 1986 and interest on damages arising from the Low Back Pain program should be computed from May 23, 1986. For ease of calculation, all damages will be calculated from April 14, 1986, the midpoint between these two dates. See N.Y. Civ. Prac. L. & R. Sec. 5001(b); Computer Assocs., 775 F. Supp. at 572.

26. The annual rate of interest on the compensatory damages for trade secret misappropriation is nine percent. See N.Y. Civ. Prac. L. & R. Sec. 5004.

27. There is no federal statutory rate for prejudgment interest. Federal courts have applied various rates of prejudgment interest on federal claims. See Hollie v. Korean Air Lines Co., 834 F. Supp. 65,

69 (S.D.N.Y. 1993) (citing decisions in which various rates have been applied). The rate applied should be calculated to compensate the plaintiff for the loss of use of the funds during the time in question. See Diduck v. Kaszycki & Sons Contractors, Inc., 974 F.2d 270, 286 (2d Cir. 1992) (prejudgment interest on ERISA award should reflect what plan would have earned if it had had the funds it lost due to breach of fiduciary duty); In the Matter of complaint of Connecticut Nat'l Bank, 928 F.2d 39, 47 (2d Cir. 1991) (in determining prejudgment interest rate on award under Death on the High Seas Act, district court should consider inflation and interest rate plaintiff would have received on relatively risk free investments); E.E.O.C. v. County of Erie, 751 F.2d 79, 82 (2d Cir. 1984) (prejudgment interest on award under Fair Labor Standards Act and Equal Pay Act at adjusted prime rate upheld as proper exercise of discretion where such rate "has been adopted as a good indicator of the value of the use of money"). The appropriate rate to be applied to the damages for copyright infringement is the average 52-week Treasury bill rate compounded annually. See Hollie, 834 F. Supp. at 71; see also Bourne Co. v. Walt Disney Co., 31 U.S.P.Q.2d 1858, 1861 (S.D.N.Y. 1994).

28. Although the trade secret misappropriation compensatory damages overlap with the portion of the copyright infringement damages which represent defendants' lost profits, plaintiff is entitled to only one payment of prejudgment interest on each part of the compensatory damages award. Therefore, plaintiff is entitled to prejudgment interest calculated at the rate of nine percent on the trade secret misappropriation damages (defendants' profits) and prejudgment interest calculated at the annual average 52-week T-bill rate on the copyright infringement damages which do not overlap with the trade secret misappropriation damages (plaintiff's lost profits).

Punitive Damages

29. Judge Cannella found that defendants' conduct was willful and in bad faith to such a degree that plaintiff was entitled to receive punitive damages. (Softel I, C.L. Pars. 59-60.)

30. There is no formula by which the finder of fact must determine punitive damages. Yokley v. Henry-Clark Assocs., __Misc.2d __, 624 N.Y.S.2d 341, 343 (Civ. Ct. Kings Cty. 1995); Deborah S. v. Dioro, 153 MiSC.2d 708, 583 N.Y.S.2d 872, 875 (Civ. Ct. N.Y. Cty. 1992); N.Y. P.J.I. 2:278. The amount fixed need bear no particular relationship to the amount awarded as compensatory damages. Hartford Accident and indemnity Co. v. Villacre of

Hempstead, 48 N.Y.2d 218, 422 N.Y.S.2d 47, 53 n.15, 397 N.E.2d 737 (1979); Yokley, 624 N.Y.S.2d at 343; N.Y. P.J.I. 2:278.

31. However, punitive damages should bear a reasonable relationship to the wrong committed. See Chlystun v. Kent, 185 A.D.2d 525, 586 N.Y.S.2d 410, 412 (3d Dep't 1992); Manolas v. 303 West 42nd Street Enterprises, 173 A.D.2d 316, 569 N.Y.S.2d 701, 702 (1st Dep't) (setting aside jury award of punitive damages that was 80 times that awarded for compensatory damages), a2veal denied, 78 N.Y.2d 864, 578 N.Y.S.2d 879, 586 N.E.2d 62 (1991); Yokley, 624 N.Y.S.2d at 343 (reducing jury's award of punitive damages against landlord where award exceeded value of building and "vastly exceed[ed] any benefit the defendant could possibly have derived from its wrongful conduct").

32. Because the object of punitive damages is to punish the defendant, it is appropriate for the trier of fact to consider the defendant's financial circumstances in determining the amount of punitive damages. Rupert v. Sellers, 48 A-D-2d 265, 368 N.Y.S.2d 904, 913 (4th Dep't 1975); Chilvers V. New York Magazine Co., 114 Misc.2d 996, 453 N.Y.S.2d 153, 154 (Sup. Ct. N.Y. Cty. 1982); see also ffartford Accident & Indemnity, 422 N.Y.S.2d at 53 (noting that allowing insurance coverage for punitive damage awards would conflict with "the rule permitting the jury to consider defendant's financial standing in fixing the amount of punitive damages").

33. Plaintiff urged at trial that although it might be appropriate to consider an individual's financial circumstances in assessing punitive damages, it would not be appropriate to consider a corporate defendant's financial situation. (Tr. at 373-74.) Plaintiff's position is not supported by the decisions of the courts of New York. see Thoreson v. Renthouse Int'l. Ltd., 149 Misc.2d 150, 563 N.Y.S.2d 968, 976-77 (Sup. Ct. N.Y. Cty. 1990), aff'd as modified, 179 A.D.2d 29, 583 N.Y.S.2d 213 (1st Dep't), aff'd, 80 N.Y.2d 490, 591 N.Y.S.2d 978, 606 N.E.2d 1369 (1992); Keefe v. Gimbel's, 124 Misc.2d 658, 478 N.Y.S.2d 745, 750 (Civ. Ct. N.Y. Cty. 1984); Chilvers, 453 N.Y.S.2d at 154.

34. Plaintiff also argued at trial that plaintiff's attorneys' fees should be taken into account in fixing the amount of punitive damages. In its post-trial brief, plaintiff cites Jeffries Aylon v. Gallagher, 149 Misc.2d 552, 567 N.Y.S.2d 339, 339-40 (Sup. Ct. N.Y. Cty. 1991) as authority for its position. That case held that it was appropriate for the trier of fact to consider attorneys' fees in connection with a determination of punitive damages in cases where malice has been proved.

Jeffries, 567 N.Y.S.2d at 339-40.

35. However, consideration of attorneys' fees requires evidence of actual attorneys' fees. Although plaintiff presented evidence that his attorneys spent time valued at over $700,000 (PDX D-13 & D-14), no evidence was presented to show the actual attorneys' fees incurred by plaintiff. In fact, plaintiff's counsel admitted at trial that the exhibits regarding attorneys' fees did not represent attorneys' fees either billed to or paid by plaintiff. (Tr. at 333)

36. Based on the evidence presented at trial, punitive damages of $100,000 are assessed against defendant Darsee and $150,000 against defendant Dragon.

Conclusion

For the foregoing reasons, plaintiff is awarded compensatory damages of $34,880.28 on its copyright infringement claim and $27,880.28 trade secret misappropriation claims. Because the trade secret damages overlap with the portion of the copyright damages representing defendants' lost profits, the total amount awarded is $34,880.28. Plaintiff will also receive prejudgment interest at the rateof nine percent per year on the trade secret misappropriation damages, and prejudgment interest at the average annual rate of 52-week treasury bills on the remaining $7,000 of damages. Prejudgment interest shall be calculated from April 14, 1986. Plaintiff is also awarded punitive damages of $100,000 against Darsee and $150,000 against Dragon for willful trade secret misappropriation.

The foregoing shall constitute my findings of fact and conclusions of law pursuant to Fed. R. Civ. P. 52(a). Plaintiff shall settle judgment on two days notice.

SO ORDERED:

Dated: New York, New York
July 7, 1995

/S/ MIRIAM GOLDMAN CEDARBAUM
United States District Judge

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

SOFTEL, INC.,

Plaintiff,

- against -

MEMORANDUM OPINION AND ORDER
87 Civ. 0167 (MGC)

DRAGON MEDICAL AND SCIENTIFIC COMMUNICATIONS LTD., DRAGON MEDICAL AND SCIENTIFIC COMMUNICATIONS, INC., JOHN R. DARSEE, H. EUGENE HODGE, NINA ROMANOFF, HOFFMAN LAROCHE, INC. PFIZER, INC., and PFIZER PHARMACEUTICALS, INC.,

Defendants.

APPEARANCES:

BROWN & SEYMOUR
Attorney for Plaintiff
25 West 43rd Street, Room 2102
New York, New York 10036

By: Whitney North Seymour, Jr., Esq
Craig A. Landy, Esq.
Peter James Clines, Esq.

CHARLA R. BIKMAN, Esq.
Attorney for Plaintiff
105 Duane Street, Suite 46C
New York, New York 10007
(212) 346-9774

STROOCK & STROOCK & LAVAN
Attorneys for Defendants
7 Hanover Square
New York, New York 10004-2594

By: Bruce H. Schneider, Esq.
Gordon Kessler, Esq.

JAFFE & ASHER
Attorneys for Defendants
52 Vanderbilt Avenue
New York, New York 10017

By: William A. Rome, Esq.

CEDARBAUM, J.

Defendants have moved for reconsideration of my Memorandum Opinion and Order dated July 7, 1995. They argue that defendant Darsee should not be held jointly liable for the profits earned by defendant Dragon from the use of plaintiff's computer code. Defendants also contend that the punitive damage awards against them are excessive based on the evidence presented at trial, and should be reduced. For the reasons discussed below, defendants' motion is granted in part and denied in part.

Joint Liability for Dragon's Profits

Defendants argue that Darsee should not be held liable for Dragon's profits because disgorgement of profits is available only as against the defendant who earned the profits. Defendants correctly point out that the general rule under copyright law is that liability for illegal profit is several and not joint--that is, "one defendant is not liable for the profit of another." MCA, Inc. v. Wilson, 677 F.2d 180, 186 (2d Cir. 1981) (1909 Act); see also Abeshouse v. Ultragraphics, Inc., 754 F.2d 467, 472 (2d Cir. 1985) (applying MCA in case under the 1976 Act). However, there may be an exception to this general rule "where the infringement was not innocent." Abeshouse, 754 F.2d at 472; Harris v. Miller, 50 U.S.P.Q. 625 (S.D.M.Y. 1941); 3 M. Nimmer, Nimmer on Copyright § 12.04[C][3] (1994). Judge Cannella's findings in the liability trial justify this exception.

Furthermore, under the law of New York (and of other jurisdictions) an employee may be held jointly liable for the profits earned by the employer as a result of the employee's misappropriation of a trade secret. See Minnesota Mining & Mfg. Co. v. Technical Tape Corp., 23 Misc.2d 671, 192 N.Y.S.2d 102, 123 (Sup. Ct. Westchester Cty. 1959), aff'd, 15 A.D.2d 960, 226 N.Y.S.2d 1021 (2d Dep't 1962); see also Structural Dynamics Research Corp. v. Engineering Mechanics Research Corp., 401 F. Supp. 1102, 1120 (E.D. Mich. 1975). Because the trade secret' damages are coextensive with defendants' profits from copyright infringement, it is appropriate to apply New York law regarding trade secret misappropriation, and to hold Darsee and Dragon jointly liable for Dragon's profits from the trade secret misappropriation.

Punitive Damages

Darsee argues that the punitive damage award assessed against him is excessive in light of the evidence presented at trial. Darsee relies on Vasbinder v. Scott, 976 F.2d 118, 121 (2d Cir. 1992), for the proposition that the award of punitive damages against

him should not exceed ten percent of his net worth. Darsee's reliance on Vasbinder is misplaced for several reasons. First, Vasbinder awarded punitive damages under a federal civil rights statute, while the punitive damages in this case are awarded pursuant to New York common law. Second, Vasbinder did not hold that a punitive damages award could not exceed ten percent of net worth. Rather, it held that the punitive damage awards against defendants who were near retirement age were excessive in light of the dramatic reduction in retirement income caused by the punitive damage awards. Darsee is not close to retirement age -- he is 47 years old. (Tr. at 471.) Plaintiff points out that under N.Y. Civ. Prac. L. & R. § 5231(b), a judgment creditor may obtain execution against only ten percent of a debtor's annual income. The rule adequately addresses the concern of the Second Circuit that the punitive damage award should not "result in the financial ruin of the defendant." Vasbinder, 976 F.2d at 121.

Finally, Darsee's argument that the punitive damage award against him is a disproportionately large percentage of his net worth presupposes that I credit his trial testimony regarding his income and assets. At trial, I asked Darsee whether he was a shareholder of Scientific Information Systems ("SIS"), the company by which he is now employed, and he answered, "No." (Tr. at 480.) On cross examination, plaintiff's counsel asked Darsee who owned the shares of SIS, and he replied that the shares were owned by his wife, his 23-year-old daughter and one other person. (Tr. at 486.) Although defendants' counsel argued that Darsee's answer to my question was "truthful, although perhaps too literal," (Tr. of Oral Arg., July 21, 1995, at 14), I find that Darsee's answer to my question evidenced his intent to obscure his true financial situation from the court. The evidence at trial showed that Darsee has taken other steps to attempt to insulate himself and misrepresent his true income. For example, in 1993, SIS paid him a salary of $20,500 and paid his wife a salary of $83,000. Darsee admitted at trial that he had spent more time working for SIS than had his wife. (Tr. at 487.) Because Darsee was not forthcoming about his financial situation, I do not credit his testimony, and base the award of punitive damages on an estimate of his income and assets that takes into account his attempt to conceal his true financial situation.

Dragon argues that the punitive damage award against it is excessive in light of the evidence presented at trial that its only remaining assets are bank accounts valued at $16,187.26.

"[T]he purpose of punitive damages is to punish the defendant and to deter him and others from similar conduct in the

future. Vasbinder, 976 F.2d at 121. Accordingly, a punitive damage award should not be so high as to result in a defendant's financial ruin. Id. The defendant bears "the burden of showing [its] modest means -- facts peculiarly within its power -- if (it] wants this considered in mitigation of damages." Zarcone v. Perry, 572 F.2d 52, 56 (2d Cir. 1978); see also Ostanzo Commerzanstalt v. Telewide Systems, Inc., 608 F. Supp. 1359, (S.D.N.Y. 1985), aff'd in part, rev'd in part, 794 F.2d 763 (2d Cir. 1986); Keen v. Keen, 113 A.D.2d 964, 493 N.Y.S.2d 636, 638 (3d Dep't 1985).

No evidence was presented by Dragon of the value of Dragon's assets prior to dissolution. The evidence regarding the current value of Dragon's bank accounts does not shed light on the value of any assets of Dragon that may have been transferred to Dragon's parent upon Dragon's voluntary dissolution. As discussed above, the evidence presented by Darsee regarding his net worth was not credible. Therefore, it is extremely difficult to determine the appropriate punitive damage awards in this case.

However, upon further reflection on the evidence presented at trial and on the principles enunciated in Vasbinder, I find that the punitive damage awards against Darsee and Dragon are excessive because they are greater than necessary to serve the purpose of deterrence. Therefore, I reduce the award against Darsee to $35,000 and the award against Dragon to $50,000.

Conclusion

For the foregoing reasons, defendants' motion for reconsideration is granted in part and denied in part. Plaintiff shall settle judgment on two days notice.

SO ORDERED.

Dated New York, New York
October 13,1995

/s/
MIRIAM GOLDMAN CEDARBAUM
United States District Judge

UNITED STATES COURT OF APPEALS
FOR THE SECOND CIRCUIT

No. 59-August Term, 1996
(Argued: September 12, 1996 Decided: July 9, 1997)
Docket No. 95-9151

SOFTEL, INC.,

Plaintiff-Appellant,

DRAGON MEDICAL AND SCIENTIFIC COMMUNICATIONS, INC.; DRAGON GROUP LTD., also known as Dragon Medical and Scientific Communications, Ltd.; JOHN R. DARSEE; H. EUGENE HODGE; NINA ROMANOFF,

Defendants-Appellees.

B e f o r e:

MINER, ALTIMARI, and PARKER,
Circuit Judges.

Appeal from judgment of the United States District Court for the Southern District of New York (John M. Cannella, *Judge),* in a computer program copyright infringement, misappropriation of trade secrets, and Lanham Act violation suit, wherein Judge Cannella precluded plaintiff's use of certain expert testimony and, in a bench trial, found for plaintiff on some of its claims and against it on others. Appeal also from separate damages award before Miriam G. Cedarbaum, *Judge.*

We affirm in part, and vacate and remand in part.

CHARLA R. BIKMAN, New York, NY, *for Plaintiff-Appellant.*

BRUCE H. SCHNEIDER, New York, NY (Gordon M. Kessler, Stroock & Stroock & Lavan, New York, NY, William A. Rome, Jaffe and Asher, New York, NY, of counsel), *for Defendants-Appellees Dragon Medical & Scientific Communications, Inc., John R. Darsee and H. Eugene Hodge.*

PARKER, *Circuit Judge:*

Softel, Inc., a computer software company, brought this action against Dragon Medical and Scientific Communications, Inc. ("Dragon"), its parent Dragon Group, Ltd., and several of its employees (collectively "the defendants") claiming that the defendants had infringed copyrights Softel held in several of its computer programs, and had misappropriated trade secrets contained within the computer code. Softel also alleged that the defendants were guilty of "reverse palming off" under § 43(a) of the Lanham Act, 15 U.S.C. § 1125(a), and that the defendant corporation's president was vicariously and contributorily liable for damages. In a bench trial, the district court (John M. Cannella, *Judge)* found the defendants liable on some of plaintiff's copyright infringement and trade secret claims, but not on others, and rejected plaintiff's claims based on the Lanham Act and vicarious or contributory liability. In a separate proceeding, the court (Miriam G. Cedarbaum, Judge) awarded damages accordingly. We affirm in part and, because the district court's findings and holdings do not address all of plaintiff's claims, vacate and remand in part.

I. BACKGROUND

Softel is a small New Hampshire corporation engaged in the business of creating and selling computer graphics products. Paul Fiondella is its president and sole shareholder. Dragon is a New Jersey corporation engaged in the business of designing communications programs relating to medical and scientific information. H. Eugene Hodge is Dragon's president and a shareholder of Dragon; Nina Romanoff is a Dragon employee who produced various films and videotapes for Dragon; John R. Darsee is a medical writer and computer programmer for Dragon. *See Softel, Inc. v. Dragon Med. & Scientific Communications, Inc.,* No. 87 Civ. 0167, 1992 WL 168190, at F.F. pars. 1-6 [1] (S.D.N.Y. June 30, 1992) *("Softel II").*

In January 1993, [sic] Fiondella developed Videogram I.0, a "paint-and-draw" computer graphics program.[2] Later in 1983, Fiondella developed an improved version of this program, Videogram 2.0. In 1984, Pfizer Laboratories hired Dragon to produce a program

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[1] Where the district court has numbered its findings of fact ("F.F.") and conclusions of law ("C.L."), we will cite to those numbered findings or conclusions

[2] "Paint and draw" programs enable the computer user to create graphic images on a computer screen. *See Sofel II* at F.F. at par. 13.

which later became known as Heartlab. Darsee saw an advertisement for Videogram 2.0, and called Fiondella with some questions regarding its capabilities. Dragon employee Darsee purchased the software, and some hardware, from Fiondella. Fiondella delivered the goods personally to Dragon's place of business in New York, so that he could explore any potential business opportunities for his company at Dragon. Fiondella and Darsee discussed forming a joint venture to create an "authoring language" and Darsee asked Fiondella to create a simulation of a beating heart for the Heartlab project.

In January 1985, E.R. Squibb & Sons, Inc. hired Dragon to create an interactive videotape program for training purposes. This project was called Azactam. Dragon hired Fiondella to write computer code for this project. Fiondella was careful not to provide his source code [3] to Dragon and imbedded a copyright notice in Softel's portion of the source code and in the executable [4] delivered to Dragon.

Dragon had also contracted to produce videodisc programs wit'. Roche Laboratories. These would come to be known as Melanoma, Kaposi's Sarcoma ("Kaposi"), and Hairy Cell Leukemia. Dragon engaged Fiondella to write code to control the operation of the touchscreen and videodisc player in the program Melanoma, and to retrieve and display graphic images produced by Dragon artists. Fiondella wrote this code in a modular [5] style. He also used a manual produced by the hardware manufacturer to interface the hardware and software properly. He billed Dragon on a per diem basis, delivered only the executable version of his program, and imbedded a copyright notice in the executable.

Fiondella also worked on Kaposi, using code that was similar to that used in Melanoma. He employed several design techniques

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[3] Source code is a series of instructions written in a computer language such as COBOL, BASIC, or FORTRAN. *See Computer Assocs.Int'l,Inc. v. Altai, Inc.*, 982 F.2d 693, 698 (2d Cit. 1992)

[4] The "executable" is the version of the program that actually runs on the computer. *See Softel II* at F.F. Par. 11. It comprises linked modules of object code. *See id.* "Object code" is a machine-readable binary translation of source code. *See Altai,* 982 F.2d at 698. A "compiler" pro-ram translates source code into object code. *See id.*

[5] "Modules," or "subroutines," are discrete portions of a program that perform "subtasks." *See Altai,* 982 F.2d at 697

in writing the Kaposi code, including, among others, the use of external files, English language commands, modular structure, and a hierarchical series of menus and a touchscreen. This program also was delivered in executable form only, and with an imbedded copyright notice.

At about the time that Kaposi was finished, Dragon hired Fiondella to work on a project called Sorbinil. Fiondella wrote code for this project and submitted an executable to Dragon. However, as the deadline for the project approached, problems developed with the program. Dragon called Fiondella to ask him to come to Dragon's office in New York and fix the program, but Fiondella was out of town. A friend of Fiondella's went to Dragon's office instead, and managed to fix the immediate problem by following Fiondella's instructions over the telephone.

Unfortunately, additional problems arose. Fiondella himself went to Dragon's premises on June 17, 1985. Fiondella and one of Dragon's freelance computer programmers entered into a heated argument over whose code was causing the problem. The freelance programmer demanded that Fiondella turn over his code, so that the programmer could examine it himself. When Fiondella refused, the programmer stated that he had the ability to get Fiondella's code off Dragon's computers anyway, because he could "unerase" the code that Fiondella had put on the computers during his visits there and (seemingly) erased upon leaving. Fiondella became enraged. Dragon's president, Hodge, was present at the altercation and decided that because Fiondella had acted unprofessionally, he could no longer work for Dragon. Fiondella successfully fixed the problems with the software shortly after that.

Defendant Darsee then gained access to the code that Fiondella had put on Dragon's computers and seemingly erased.

In June 1985, [sic] Dragon produced the third videodisc program for Roche, Hairy Cell Leukemia. Roche wanted two versions: Hairy Cell U.S. and Hairy Cell Europe. Dragon produced an interim version called Hairy Cell Roche for distribution to Roche's European subsidiaries, but did not keep a copy because Dragon considered it to be an interim program.

In 1986, Dragon made a program for Pfizer called Low Back Pain. This program included the Backpain Expert Module. Shortly thereafter, Dragon produced a program called Heartlab for Pfizer. Darsee wrote the code for this program, except for the animation and image retrieval routines, which were Fiondella's. Fiondella was paid for this code.

Defendants admit that Hairy Cell Roche, Low Back Pain, and Heartlab used Fiondella's image retrieval routines.

Late in 1985, Darsee began to develop a paint-anddraw program called Paintbox. The early version of this software included Fiondella's image retrieval routines. Darsee sent a letter to the Kurta Corporation suggesting that Dragon and Kurta co-marketing some of the programs Dragon had developed, including Paintbox. Nothing came of this suggestion.

About this time, Dragon began to market itself as having a division called Dragon Expert Systems that specialized in interactive technology. Dragon sponsored a hospitality suite at a conference of the American Association of Family Practitioners on October 9-11, 1985. It solicited interest in this presentation by sending letters to prospective clients and issuing a press release describing itself as a group of physicians and artists capable of producing computer images. No evidence was adduced showing that any sales resulted from this presentation.

In May of 1986, Softel sought, and was granted, a copyright registration for a package of programs that included the following: (1) a program written in BASIC entitled "SHOWPIX.bas," which is an image retrieval routine; (2) a collection of object code routines called "8068/8 Support Routines," which included assembly code routines used to retrieve and display images; and (3) the source code for the Kaposi program.

In November 1986, Darsee exhibited the program Hairy Cell Roche at a meeting of the International Interactive Communications Society. He did not credit Fiondella or Softel for any of the code contained therein. The presentation did not produce any business.

In early 1987, Softel filed this suit alleging, *inter alia,* that the defendants had infringed copyrights Softel held in its programs, had misappropriated trade secrets in the code, and had violated § 43(a) of the Lanham Act.

In 1988, after the commencement of this litigation, Dragon made the following programs, which Softel claims are also infringing: Unasyn, Micro, OB/GYN, Managed Health Care, Heart Command (collectively, the "post-litigation programs"). These programs are written in a different computer language than Fiondella's original code, and are designed to work with different hardware.

During discovery, Softel attempted to change its outside trial

expert witness, [6] but the new expert was unable to meet a discovery deadline imposed by Magistrate Judge Nina Gershon. Magistrate Judge Gershon forbade Softel to rely at trial on any outside expert other than its original one. The district court affirmed this preclusion order. *See Softel, Inc. v. Dragon Med. & Scientific Communications, Inc.*, No. 87 Civ. 0167, 1990 WL 164859, at *8 (S.D.N.Y. Oct. 24, 1990) *("Softel I")*. The case then went to a bench trial before Judge Cannella in late April and early May 1991. The Judge found, *inter alia*, that the defendants' pre-litigation programs infringed Softel's programs, and that the defendants had misappropriated the trade secrets contained within Softel's image retrieval routines. There is no appeal from those findings or the damages ultimately assessed in connection with them. However, the judge rejected Softel's claims of infringement in the post-litigation programs, as well as its Lanham Act and trade secret claims. *See Softel II*. Several years later, the issue of damages was tried before the Hon. Miriam G. Cedarbaum, who awarded Softel $34,880.28 compensatory damages on its copyright infringement and trade secret misappropriation claims, as well as $100,000 punitive damages against Darsee and $150,000 punitive damages against Dragon for willful trade secret misappropriation. *See Softel, Inc. v. Dragon Med. & Scientific Communications, Inc.*, 891 F. Supp. 935, 946 (S.D.N.Y. 1995) *("Softel III")*. Judge Cedarbaum subsequently reduced the punitive damages awards to $35,000 against Darsee and $50,000 against Dragon. *See Softel, Inc. v. Dragon Med. & Scientific Communications Inc.*, No. 87 Civ. 0167, 1995 WL 606307, at *2 (S.D.N.Y. Oct. 16, 1995). Softel appeals the trial court's preclusion of its trial expert and the rejection of its copyright infringement claims relating to the post-litigation programs. It also appeals the dismissal of its Lanham Act and trade secret claims (including the damages calculation under the latter) and the court's rejection of its claim that Hodge was vicariously or contributorily liable for infringement. We affirm the trial court's rulings, except that we remand the case for further consideration of Softel's claims that Dragon's post-litigation programs infringed the copyrightable structure of Softel's programs, and that the post-litigation programs misappropriated trade secrets in Softel's programs.

II. DISCUSSION

A. *Preclusion of Softel's Expert*

In December 1989, Magistrate Judge Gershon set adiscovery

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[6] Fiondella also presented expert testimony for the plaintiff at trial.

cutoff date of January 30, 1990. At a pretrial conference on December 6, 1989, Softel advised Magistrate Judge Gershon that it was substituting a new expert, Dr. Thomas A. DeFanti, for its former expert, Aaron Grosky. Magistrate Judge Gershon agreed to allow Softel to serve a report by its new expert, but said that the new expert's report must be submitted by December 22, so that Dragon would have time to respond before the deadline. *Softel I* at *2. Softel also announced that its first expert, Grosky, refused to return the diskettes that contained the programs at issue in the litigation, because of a fee dispute. Apparently, Softel had not made duplicates of the diskettes before giving them to Grosky. Dragon agreed to duplicate the disks it had, and delivered 175 disks to Softel a few days later, on December I 1, and a few remaining diskettes a week later, on December 18, three days before the discovery cutoff deadline. On December 21 (the day before the deadline), Softel asked that the date be extended, as DeFanti needed more time to review the materials. On January 8, 1990, Magistrate Judge Gershon refused to extend the deadline, holding that Softel had produced no justified explanation. On January 12, Magistrate Judge Gershon explained this preclusion order as disallowing Softel from presenting at trial the testimony of any expert witness from outside the company except that of the expert originally designated, i.e., Grosky. Softel objected to these rulings pursuant to Fed. R. Civ. P. 72(a) but Judge Cannella upheld both rulings. *See id.* At trial, Judge Cannella also rejected Softel's attempt to have DeFanti's report introduced as rebuttal evidence, stating that the tenor of his first order had been that Grosky would be the only outside expert witness for Softel, and that this order included Softel's rebuttal case. Softel challenges these rulings as abuses of discretion on the part of the district court.

We review the district court's order for abuse of discretion. *See Update Art, Inc. v. Modiin Publ'g, Ltd., 843* F.2d 67, 71-72 (2d Cir. 1988). In determining whether a district court has exceeded its discretion, we consider the following factors: (1) the party's explanation for the failure to comply with the discovery order; (2) the importance of the testimony of the precluded witness; (3) the prejudice suffered by the opposing party as a result of having to prepare to meet the new testimony; and (4) the possibility of a continuance. *See Outley v. City of New York,* 837 F.2d 587, 590-91 (2d Cir. 1988).

With respect to the first *Outley* factor, we note that Softel was allowed to change its expert roughly sixty days before the discovery deadline on the condition that the new expert file his report roughly

a month later, i.e. by December 22. Softel's explanation for its failure to comply with this deadline was that DeFanti did not have enough time to conduct his inquiry because he did not have access to the relevant diskettes until shortly before the deadline. This explanation is inadequate. Softel could have provided its new expert with additional time in a variety of ways: it could have retrieved its diskettes from Grosky by paying him the disputed fee and then suing for the alleged overcharge, it could have made copies of the diskettes before giving them to Grosky, or, most obviously, it could have notified the court and the defendant of the fee dispute several months earlier than it did. Dragon cannot be charged with the burden of producing the diskettes from which DeFanti was to work: it gave additional copies of these disks to Softel as an accommodation.

Softel directs our attention to *Potlatch Corp. v. United States*, 679 F.2d 153 (9th Cir. 1982). In that case, which involved a complicated tax dispute, the government advised the court when it was first setting discovery deadlines that it had not yet hired an expert, and that all of the experts it had interviewed had estimated that work on the project would take six months. *See id.* at 154. The court set a deadline of six months later. When the government failed to meet this deadline, the district court excluded the experts' testimony. The Ninth Circuit reversed, taking into account the following facts: the district court's deadline could reasonably have been construed by the government to have been a precatory one; government attorneys must endure considerable red tape in order to hire an expert; the government did not control the experts; and, finally, the taxpayer delayed also. *See id.* at 155-56. We believe *Potlatch* is distinguishable on these facts. In this case, the deadline was clearly not precatory, Softel did not have to deal with governmental red tape to hire its witness, and, perhaps most importantly, the district court was not notified that the expert would not be able to comply with the deadline until the day before the deadline itself-a far cry from the situation in *Potlatch* where the government notified the court *at the initial status conference.* Discovery in this case began in early 1987 and ended in January 1990: Softel does not claim that an expert could not have completed the required analysis within that time. Instead, it claims that the time it was granted after it decided to change experts late in the period, and after it had (not irretrievably) lost its only copy of the relevant materials to its first expert, was inadequate for it to alter or bolster portions of discovery that had already taken place. On these facts, *Potlatch* avails them naught.

The second *Outley* factor-the importance of the testimony of the precluded witness-cuts in favor of Softel, but only slightly. While it is of course important to have an expert in a technical trial such as this, Softel did have another expert it could, and did, use: Softel's president, Fiondella. Softel was denied the opportunity to bolster Fiondella's testimony with DeFanti's, but this prejudice is slight when compared with, for example, that suffered by the plaintiff in *Outley,* whose only corroborating fact witnesses had been excluded in a trial in which credibility was the crucial issue. *See Outley,* 837 F.2d at 59091. Moreover, Softel was given an opportunity to enter both of Grosky's reports into evidence, but apparently chose not to do so. Under these circumstances, the prejudice resulting from the preclusion of DeFanti was slight, and hardly "tantamount to a dismissal," as Softel claims.

The third *Outley* factor is the prejudice suffered by the opposing party as a result of having to prepare to meet the new testimony. In *Outley,* this burden was slight. There, the plaintiff alleged police misconduct, and sought to put on two eyewitnesses. This Court noted that "a brief interview would have allowed the (defendant] to probe the ability of the witnesses to observe, to find out why [the witnesses] were on the street, and to uncover weaknesses or conflicts in their testimony." *Id.* at 591. We also specifically noted that "the testimony [of the witnesses] was not the technical or specialized evidence given by an expert witness." *Id.* Here, the excluded testimony *was* expert testimony. Moreover, the parameters of the dispute in a highly technical case such as this are largely defined by expert testimony. Therefore, any differences between DeFanti's testimony and Grosky's would have redrawn the boundaries of the case and almost certainly have prejudiced Dragon's ability to meet Softel's attack. Because Dragon would have been forced, at a very late date in the discovery process, to accommodate potentially significant shifts in the theories being offered against it, this factor cuts in favor of Dragon.

The final *Outley* factor is the availability of a continuance. Here, no trial date had been set, and a continuance was available. However, expeditious management of discovery schedules is especially important in cases of this nature because they require extensive expert involvement over lengthy periods of time. Therefore, the burden on the trial court of granting a continuance is greater than in some other cases. Softel points to the fact that this case did not go to trial for many months after the preclusion order as evidence of the propriety of a continuance. This of course is 20/20 hindsight. Had the court granted a continuance for Softel, it probably

would have had to grant additional time for Dragon to respond. When trial courts permit deadline slippage of this sort, trials cannot be scheduled when they ought to be, resulting in the backup of other cases and eventual scheduling chaos as a series of bottlenecks builds. Additionally, the enormous length of every step of the proceedings in this case militated against any more continuances. Denial of a continuance in the circumstances was certainly within the sound discretion of the trial judge.

The first, third, and fourth Outley factors cut against Softel; the second cuts only slightly in its favor. On balance the *Outley* factors make clear that the lower court's ruling was not an abuse of discretion. We therefore affirm it.

B. Copyright Infringement

"In any suit for copyright infringement, the plaintiff must establish its ownership of a valid copyright, and that the defendant copied the copyrighted work." *Computer Assocs. Int'l, Inc. v. Altai, Inc.*, 982 F.2d 693, 701 (2d Cir. 1992). Copying may be shown by direct evidence or by showing that "(1) the defendant had access to the plaintiff's copyrighted work and (2) that defendant's work is substantially similar to the plaintiff's copyrightable material." Id. Judge Cannella found that Dragon had access to Softel's source code, *Softel II* at F.F. par. 62, and that some of this code was copied directly into two of Dragon's pre-litigation programs, *see id.* at F.F. pars. 70, 74. Judge Cannella held that these two programs infringed Softel's copyrights. *See id.* at C.L. pars. 9-24. However, Judge Cannella rejected Softel's claim that several of Dragon's post-litigation programs infringed Softel's copyrights as well. He held that the post-litigation programs were not similar to Softel's programs in any way that was copyrightable. *See id.* at C.L. pars. 28-34.

On this appeal, Softel renews its claim that Dragon's post-litigation programs infringed copyrights held by Softel. Softel argues that it claimed in the district court that its software combined certain computer programming design elements in an expressive way and that Dragon had copied that expression, but that Judge Cannella ignored this claim and instead addressed (and rejected) a claim that Softel had not made, to wit, that each of the design elements, *taken individually,* was protectible expression.

It is well-established in this Circuit that non-literal similarity of computer programs can constitute copyright infringement. *See Altai,* 982 F.2d at 702. We have prescribed an "abstraction-filtration-comparison" method of analysis for determining whether a program

has been infringed. *See id.* at 706-12. Under this analysis, the allegedly infringed program is first broken down and examined at varying levels of abstraction. *See id.* at 706-07. Second, the allegedly infringed program is "filtered" at each level of abstraction through various copyright doctrines that deny protection to certain types of materials. For example, the *scene a faire* doctrine denies protection to program elements that are dictated by external factors such as "the mechanical specifications of the computer on which a particular program is intended to run" or "widely accepted programming practices within the computer industry." Id. at 709-10. Third, the resulting protectible expression is compared with the allegedly infringing program. *See id.* at 710-11.

Our application of this method of analysis to the facts *of Altai* demonstrates that an allegation of infringement based on similarities in architecture cannot be ignored merely because many or all of the design elements that make up that architecture are not protectible when considered at a lower level of abstraction. In *Altai,* the district court held many aspects of the program at issue in that case to be not protectible for various reasons (e.g., because they were in the public domain or were computer *scenes a faire).* Nevertheless, the court proceeded to a higher level of abstraction and responded to the plaintiff's claim of infringement based on alleged similarities between the two programs' "organizational charts." *Computer Assocs. Int'l, Inc. v. Altai, Inc.,* 775 F. Supp. 544, 562 (E.D.N.Y. 1991). In reviewing that claim, the trial court made no effort to remove from its analysis those elements of the program that had been found unprotectible at the lower level of abstraction. Instead, analyzing the program at the higher level of abstraction, it rejected the organizational claim on the grounds that the structure alleged to have been infringed was "simple and obvious" to anyone exposed to the operation of the program[s]." *Id.* This Court approved that approach, adding only that the district court's use of the word "obvious" should be understood to be a holding that the purportedly infringed structure was a *scene a faire. See Altai,* 982 F.2d at 714-15.

The foregoing approach is consistent with the Supreme Court's decision in *Feist Publications, Inc. v. Rural Telephone Service Co.,* 499 U.S. 340 (1991), discussed by this Court in *Altai,* 982 F.2d at 711-12. In *Feist,* the Court made quite clear that a compilation of non-protectible elements can enjoy copyright protection even though its constituent elements do not. *See Feist,* 499 U.S. at 344-51. A district court in another circuit has illustrated the danger of overlooking this aspect of copyright law with an astute

hypothetical:

> Suppose defendant copied plaintiff's abstract painting composed entirely of geometric forms arranged in an original pattern. The alleged infringer could argue that each expressive element (i.e., the geometric forms) is unprotectible under the functionality, merger, scenes a faire, and unoriginality theories and, thus, all elements should be excluded prior to the substantial similarity of expression analysis. Then, there would be nothing left for purposes of determining substantial similarity of expression. In this example, elimination of "unprotectible" elements would result in a finding of no copyright infringement, which would be clearly inconsistent with the copyright law's purpose of providing incentives to authors of original works.

Apple Computer, Inc. v. Microsoft Corp., 779 F. Supp. 133, 136 (N.D. Cal. 1991), *aff'd in relevant part and rev'd and remanded in part*, 35 F.3d 1435, 1444 (9th Cir. 1994). Scholars agree:

> Although the . . . scrutiny involved in the level-by-level analysis may deny protection to some individual program elements, it must be remembered that a *combination* of these elements may be protectable. An original arrangement of uncopyrightable or public domain works-even facts-is as copyrightable as a compilation in the computer context as it is elsewhere in copyright law. Thus, individual program elements that are "filtered" out at one level may be copyrightable when viewed as part of an aggregate of elements at another level of abstraction.

Arthur R. Miller, *Copyright Protection for Computer Programs, Databases, and Computer-Generated Works: Is Anything New Since CONTU?*, 106 Harv. L. Rev. 977, 1003 (1993) (footnote omitted); *see also* 3 Melville B. Nimmer & David Nimmer, *Nimmer on Copyright* § 13.03 [F][5], at 13-145 (1996) *("Nimmer")* ("In performing the filtering, the court should be sensitive to the myriad ways in which copyrightable creativity can manifest itself; the analysis should not proceed mechanically simply by isolating physical elements out of the copyrightable work."). [7] Indeed, when applied to the context of

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[7] Our statement in A.A. *Hoehling v. Universal City Studios, Inc.*, 618 F.2d 972 (2d Cir. 1980), that -[t1here cannot be any such thing as copyright in the order of presentation of the facts, nor, indeed, in their selection," id. at 978 (quoting *Myers v. Mail & Express Co.*, 36 C.O. Bull. 478, 479 (S.D.N.Y. 1919) (L. Hand, J.)), may at first blush appear to contradict this. However, we have explained this

literary works, this point becomes quite obvious: taken individually, the words that constitute a literary work are not copyrightable, yet this fact does not prevent a literary text, i.e., a collection of words, from enjoying copyright protection. *See Nimmer* § 13.03 [F][5], at 13-145 n.345.1 (explaining that the fact that Hamlet's soliloquy can be atomized into unprotectible words does not mean that the soliloquy as a whole lacks originality for copyright purposes). [8]

We now turn to Softel's argument that Judge Cannella's findings and holdings fail to address adequately its claim of structural infringement in the post-litigation programs. [9] Softel points out that

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statement as referring only to compilations of facts that fail to display the constitutional minimum of originality. *See Arica Inst., Inc. v. Palmer,* 970 F2d 1067, 1075 (2d Cir. 1992).

[8] We also note that there may be protectible expression *within* an unprotectible element as well. Our *scene afaire* cases have made this point for many years. For example, in *Walker v. Time Life Films, Inc.,* 784 F.2d 44 (2d Cir. 1986), we observed that *scenes afaire* are not protectible "except to the extent they are given unique-and therefore protectible-expression in an original creation," id. at 50. Similarly, in *Hoehling* we stated the following:

> We are aware . . . that in distinguishing between themes, facts, and *scenes afaire* on the one hand, and copyrightable expression on the other, courts may lose sight of the forest for the trees. By factoring out similarities based on non-copyrightable elements, a court runs the risk of overlooking wholesale usurpation of a prior author's expression. A verbatim reproduction of another work, of course, even in the realm of nonfiction, is actionable as copyright infringement. 618 F.2d at 979-80.

[9] In its briefs, Softel makes such statements as "[t]he District Court never discerned the structure of the program," and "[the court] did not examine the code of Plaintiff's computer program nor attempt to understand the purpose and function of Plaintiff's routines or subroutines or the structure of its program." If by these statements Softel means to argue that the district court was obliged to conduct its own inquiry of Softel's evidence *sua sponte,* then Softel misunderstands the role of the court in a proceeding such as this. *Altai* articulated the proper copyright analysis to be applied to evidence properly adduced in cases involving allegations of non-literal similarity in computer programs; it did not decree a new role for courts in adducing such evidence. Our statements *in* Altai referring to the court's role in analyzing non-literal infringement claims (for example, that *"a court* [should] first break down the allegedly infringed program into its constituent structural parts," Altai, 982 F.2d at 706 (emphasis added), or that "in a manner that resembles reverse enaineerino on a theoretical plane, *a court* should dissect the allegedly copied pro-ram's structure and isolate each level of abstraction contained within it," *id.* at 707 (emphasis added)), should be taken only as statements as to what the court should do to analyze evidence properly brought before it by a party. *See MiTek Holdings, Inc. v. ARCE Eng'g Co.,* 89 F3d 1548, 1555 (I lth Cir. 1996)

in its Post-Trial Memorandum of Law it summarized its claim as follows:

> Plaintiff makes no claim that the individual elements used to create the copyrighted code are themselves separately copyrightable in the abstract. What plaintiff claims is that the way the elements are expressed in computer code and the way the elements are integrated with each other constitutes copyrightable matter.

Pl.'s Responsive Post-Trial Mem. of Law at 8-9 (cited by Appellant's Br. at 28-29). In this same document, Softel also asserted that "plaintiff's authoring language which integrates hierarchical menus, touchscreens, modules, external files and English-language commands is an original expression which is copyrightable." *Id.* at 12 n.4. Finally, in its Trial Memorandum, which Judge Cannella cites in his summary of Softel's claims, *see Softel II* at C.L. par. 28, Softel makes the following statement:

> The genius of the structure, sequence and organization of plaintiff's program is the way in which it receives, assembles, calculates, retains, correlates and produces information on screen. Since there are other ways of performing those functions to achieve the same purpose as the Softel program, plaintiff's copyrighted work is a protectable expression of ideas which cannot be infringed with impunity.

Pl.'s Trial Mem. at 38 (emphasis in original and internal quotation marks omitted). [10]

Softel supported this theory with the testimony of Fiondella and with cross-examination of the defendants' expert, Cain. Fiondella testified that his software used external files, modular

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("[I]f the copyright holder presents the court with a list of features that it believes to be protectable (i.e., original and outside of 17 U.S.C. § 102(b)), the court need not abstract further such features."). Therefore, we will take Softel's arguments that Judge Cannella inadequately analyzed their claims to refer only to the Judge's analysis of evidence that Softel properly presented to the Judge.

[10] It is also interesting to note that Dragon apparently understood Softel's claims to include a claim that the choice and manner of combination of the design elements were protectible expression. It argued that "[t]aken alone *or together,* each of these elements must be filtered out from the substantial similarity inquiry, since all are unprotectable as a matter of law." Def.'s Post-Trial Mem. at 45 (emphasis added and citations omitted).

programming, and English language commands, and that "each command in those external command files is translated by the program into the execution of certain modules." He asserted that "[y]ou would find in the Dragon programs the same structure." He also testified that the specific commands employed in Dragon's program were functionally identical with the fifteen commands employed in Softel's software. He then explained that the menus cued the command files. Finally, in its cross-examination of Dragon's expert, Softel explored the question of whether there were alternative ways to design a program such as Softel's, and whether Dragon's post-litigation programs had "evolved" from Softel's.

Thus, Fiondella testified regarding relationships between all four of the design elements at issue: apparently, the menus cued external files which read English language commands into the main program, where the commands cued modules of code. Standing alone, these allegations may not help answer the question of how many ways existed to design a computer program with the same functionality as Softel's. However, when they are combined with an allegation that the specific commands used by Dragon were nearly identical with Softel's, they do appear to establish at least a colorable claim that there was a modicum of expression in the design of the program and that Dragon infringed that expression. That is, even if there were few ways to design such a program, it does not seem likely that Dragon would have to use an identical structure and copy approximately fifteen out of fifteen commands.

Softel presented an argument, supported by some evidence, that the manner in which it had combined certain computer design elements was expressive for purposes of copyright law, and that Dragon had copied this expression. Keeping in mind that the requisite level of originality for copyright protection is "minimal" and 44 extremely low," *Feist,* 499 U.S. at 345, we cannot say that Softel's claim was without merit on its face. However, several aspects of Judge Cannella's opinion reveal that he either ignored or misanalyzed Softel's argument, and consequently failed to perform the *Altai* analysis at the highest level of abstraction-here, the interrelationships among the four identified elements.

First, the Judge's statements of his understanding of Softel's claims reveal that the Judge understood Softel to be claiming only that each element, taken individually, was expressive. In his findings of fact, Judge Cannella summarized his understanding of Softel's claims as follows:

Plaintiff argues that [certain of Fiondella's programming

decisions] constitute the structure, sequence and organization of his copyrighted work and that Dragon's post-litigation programs are infringing because they contain these elements. The elements which plaintiff claims are entitled to copyright protection are the use of the following:

> (1) an external file structure;
>
> (2) English language command[s];
>
> (3) functional modules, specifically including those to operate the hardware; and
>
> (4) a hierarchical series of menus with a touchscreen.

Softel II at F.F. par. 107. In his conclusions of law, the judge stated an understanding of Softel's claims that was essentially identical to his previous statement. *Compare id. with id.* at C.L. par. 25. Moreover, the Judge repeatedly stated that Softel sought to preclude Dragon from using any of the design elements, however combined. *See, e.g., id.* at F.F. par. 107 ("Plaintiff argues that . . . Dragon's post-litigation programs are infringing because they contain these [four design] elements."); *id.* at C.L. par. 29 ("Softel merely argues that both programs utilize menus.").

Second, the court's findings of fact and conclusions of law address each element individually, but not in relation to each other. For example, the court credited Dragon's expert testimony that each of the four design elements was pervasively used in the computer industry, *see id.* at F.F. pars. 108, 110, 111, 112, but did not address the issue of whether the choice and manner of combination of the four elements was commonplace. Similarly, the court found that the programmer at Dragon who was responsible for the post-litigation programs had learned to use external files from another source, *see id.* at F.F. par. 109, and that certain code is required whenever a screen touchpoint is used, *see id.* at F.F. par. 113, but did not address the question of where Dragon's programmer learned to combine external files, or touchpoint fingerfinding algorithms, with the other design elements,

Third, the court makes the following statement: "Since each of the elements which plaintiff claims are entitled to copyright protection are filtered out at the second step of the Second Circuit's analysis set forth in *[Altai]*, it is unnecessary for the Court to proceed to the third part of the analysis." Id. at C.L. par. 33. If by this statement the district court meant that there is no need to analyze alleged structural similarities between the programs because all of the constituent elements of the allegedly infringed program's

structure have been found to be individually unprotectible, then the statement is erroneous, as our discussion of *Altai and Feist,* above, reveals. If, on the other hand, the district court meant only that there is no need to compare *scenes a faire* because they are unprotectible in any event, then the statement is not erroneous but provides further evidence that the district court understood Softel to be claiming only that the four design elements were separately protectible.

It is true that the court, in addressing Softel's claim that Dragon's program had "evolved" from Softel's, made two statements that appear to address the issue of the manner in which the design elements are combined. First, it stated that "the post-litigation programs were significantly different from [Softel's program] in the following respects: (1) code; (2) command sets and processing of commands; (3) internal file structure; (4) processing of files; (5) command file interaction structure; and (6) organization of and relationship between modules of code." *Id.* at F.F. par. 114. Second, it stated that the post-litigation programs "were not in any way derived from plaintiff's copyrighted work." *Id.* at F.F. par. 115. These statements, however, do not alter the conclusion that the district court ignored or misanalyzed Softel's claim. The court's announcement that it would not engage in Altai comparison analysis, *see supra,* makes it very doubtful that the court had compared Softel's selection and arrangement of commands or code modules that were individually unprotectible when it made the former statement, or that it considered mimicking a structure comprising unprotectible elements to be "derivation" when it made the latter.

Whether the district court ignored Softel's claim or misanalyzed it, its treatment of that claim was inadequate, because it failed to apply the *Altai* test to the interrelationship among the design elements. Therefore, we vacate the district court's judgment as to Softel's claim of non-literal infringement in Dragon's post-litigation programs and remand so that the district court may enter a finding as to whether the manner in which Softel combined the various design elements in its software was protectible expression, and, if it was, whether Dragon infringed that expression. We express no opinion as to the merit of Softel's claim.

C. Trade Secret

1. Choice of Law

As this case has contacts with at least three statesSoftel is a New Hampshire Corporation; Dragon is a New Jersey corporation; and the theft of the trade secrets apparently occurred at Dragon's

offices located in New York-we pause to consider the applicable state law. Neither party has directly addressed the issue of which law should apply to this case: Dragon, in its brief, has cited New York cases and federal cases construing New York law, while Softel has cited cases from all over the map.

Softel's trade secret claims are governed by state law. *See Franke v. Wiltschek*, 209 F.2d 493, 494 (2d Cir. 1953). In choosing the applicable state law, we employ the choice of law rules of the forum state, in this case New York. *See Wm. Passalacqua Builders, Inc. v. Resnick Developers S., Inc.*, 933 F.2d 131, 137 (2d Cir. 1991) (citing *Krauss v. Manhattan Life Ins. Co.*, *643* F.2d 98, 100 (2d Cir. 1981)); *see also Klaxon Co. v. Stentor Elec. Mfg. Co.*, 313 U.S. 487, 496-97 (1941). New York applies an "interest analysis" to its choice of law, under which the law of the jurisdiction having the greatest interest in the litigation controls. *See Passalacqua Builders*, 933 F.2d at 137 (citing *Intercontinental Planning, Ltd. v. Daystrom, Inc.*, 24 N.Y.2d 372, 382, 248 N.E.2d 576, 582, 300 N.Y.S.2d 817, 825 (1969)). Although both Dragon and Softel are out-of-state corporations, we are convinced that a New York court would apply New York law to this case for the following reasons: (1) the defendant maintains offices in New York; (2) the plaintiff apparently maintains an apartment and de facto office in New York; and (3) the misappropriation, if any, apparently took place in New York, at Dragon's offices. *Cf. Cousins v. Instrument Flyers, Inc.*, 44 N.Y.2d 698, 699, 376 N.E.2d 914, 915, 405 N.Y.S.2d 441, 442 (1978) (per curiam) ("It is true that *lex loci delicti* remains the general rule in tort cases to be displaced only in extraordinary circumstances.").

2. New York Substantive Law of Trade Secrets

New York generally looks to section 757 of the first Restatement of Torts for its definition of a trade secret. *See Ashland Management Inc. v. Janien*, 82 N.Y.2d 395, 407, 624 N.E.2d 1007, 1012, 604 N.Y.S.2d 912, 917 (1993); *Delta Filter Corp. v. Morin*, 108 A.D.2d 991, 992, 485 N.Y.S.2d 143, 144 (3d Dep't 1985) (per curiam); *see, e.g., Eagle Comtronics, Inc. v. Pico, Inc.*, 89 A.D.2d 803, 453 N.Y.S.2d 470 (4th Dep't 1982). Under this definition, a trade secret is "any formula, pattern, device or compilation of information which is used in one's business, and which gives him an opportunity to obtain an advantage over competitors who do not know or use it." Restatement of Torts § 757 cmt. b, at 5 (1939) *(quoted in Ashland*, 82 N.Y.2d at 407, 624 N.E.2d at 1013, 604 N.Y.S.2d at 918). "[I]t is not simply information as to single or ephemeral events in the conduct of the business"; rather, it "is a

process or device for continuous use in the operation of the business." Id. New York has recognized that a computer program can be a trade secret. *See Integrated Cash Management Servs., Inc. v. Digital Transactions, Inc.*, 732 F. Supp. 370, 375 (S.D.N.Y. 1989) *("Integrated Cash Mngt. I"), aff'd, 920* F.2d 171 (2d Cir. 1990) *("Integrated Cash Mngt. II"); Belth v. Insurance Dep't,* 95 Misc.2d 18, 406 N.Y.S.2d 649 (Sup. Ct. 1977).

The district court found that the image retrieval routines were a protectible trade secret, and that Dragon had used these secrets after discovery by improper means. *Softel II* at C.L. pars. 43-44. However, the court found that the structure, sequence and organization of Softel's code was not a protectible trade secret for two reasons: (I) " Fiondella freely discussed his use of menus, English language commands, functional modules and external files with Darsee," id. at C.L. par. 42, and (2) "the evidence established that these elements were not novel or original," *id. (citing Ferber v. Stemdent Corp.,* 51 N.Y.2d 782, 783-84, 412 N.E.2d 1311, 1312, 433 N.Y.S.2d 85, 86 (1980)).

These findings do not address Softel's claim that the sequence and organization of its code, i.e., *the manner of combination* of the various design elements, was a protectible trade secret. The fact that Fiondella told Darsee that his code contained four design elements does not disclose the manner of their combination. *Cf. Integrated Cash Mngt. II,* 920 F.2d at 174 (stating, in a case under New York law, that a "user-oriented description" of a computer program is not a disclosure of a trade secret). It may be that Fiondella disclosed the specific manner as well, but the district court's finding does not make this clear. Likewise, the court's holding that the four design elements were not novel or original does not address Softel's claim that the *combination* of the elements is a trade secret. *See id.* (stating that a combination of public domain elements may be a trade secret); *SmokEnders, Inc. v. Smoke Watchers Int'l, Inc.,* 179 U.S.P.Q. 11 1, 11 2 (N.Y. Sup. Ct. 1973) (same). Therefore, neither of the court's findings addressed Softel's claim and a remand is required.

We also caution the district court on its use of the term "novelty." Under the Restatement's approach, novelty--at least as that term is used in patent law--is not required in a trade secret. *See* Restatement of Torts § 757 cmt. b, at 6-7 ("Novelty and invention are not requisite for a trade secret as they are for patentability."). The district court may have been using the term "novelty" as that term is used in a line of New York cases perhaps best known as

"submission of ideas" cases. [11] These cases, and their requirement of novelty, were recently explained by the New York Court of Appeals in *Apfel v. Prudential-Bache Securities, Inc.*, 81 N.Y.2d 470, 616 N.E.2d 1095, 600 N.Y.S.2d 433 (1993). There, the court addressed the situation in which a seller submits an idea to a buyer, and the buyer uses the idea but does not pay for it. It analyzed the problems that arise in such cases in the following manner:

> [Submission of ideas cases] pose two problems for the courts. On the one hand, how can sellers prove that the buyer obtained the idea from them, and nowhere else, and that the buyer's use of it thus constitutes misappropriation of property? . . . . On the other hand, there is no equity in enforcing a seemingly valid contract when, in fact, it turns out upon disclosure that the buyer already possessed the idea. . . . A showing of novelty, at least novelty as to the buyer, addresses these two concerns. Novelty can then serve to establish both the attributes of ownership necessary for a property-based claim and the value of the consideration--the disclosure--necessary for contract-based claims.

Apfel, 81 N.Y.2d at 478, 616 N.E.2d at 1098, 600 N.YS.2d at 436. This quotation (especially the comment 46at least novelty as to the buyer") illustrates that the term "novelty" is used in this line of cases in a very different, and much weaker, sense than it is used in patent law. *Cf.* 35 U.S.C. § 102 (defining novelty for purposes of patent law). Softel is not required on remand to show that the manner of combination of its various design elements was novel in the patent law sense.

3. The Proper Measure of Damages

The district court based its calculation of Softel's trade secret damages on Dragon's profits. *Softel III* at C.L. pars. 9-16. This was an appropriate measure of damages under New York law. *See, e.g., David Fox & Sons, Inc. v. King Poultry Co.*, 23 N.Y.2d 914, 246 N.E.2d 166, 298 N.Y.S.2d 314 (1969). It then found that these damages were coextensive with the damages it had already awarded for copyright infringement, and that Softel therefore could not take its trade secret damages, as that would amount to double recovery. *Softel III* at C.L. par. 17 (citing *Altai*, 982 F.2d at 720).

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[11] We have held that New York law requires this same showing of "novelty" in a trade secret claim. *See Hudson Hotels Corp. v. Choice Hotels Int'l*, 995 F.2d 1173, 1178 (2d Cir. 1993).

On this appeal, Softel seeks to avoid this result in two ways. First, it argues that its should have been awarded a "reasonable royalty" on its trade secret claim rather than lost profits. It calculates this royalty as its development costs multiplied by 3.5 to 5.5 (essentially to estimate profit). Alternatively, it argues that it should be granted the amount it would have charged for a source code license, because Dragon took its source code as well as its object code. It then goes on to argue, in essence, that selling such a license would have been like "selling the store," because Dragon took the "core technology" of Softel's company. Therefore, claims Softel, it should be compensated for all of the potential damage that Dragon could have inflicted by stealing the code. In making this argument, Softel points out that *University Computing Co. v. Lykes-Youngstown Corp.*, 504 F.2d 518 (5th Cir. 1974), listed "the total value of the secret to the plaintiff, including the plaintiff's development costs and the importance of the secret to the plaintiff's business" as a factor (among several) to be considered when calculating a hypothetical license as a measure of trade secret damages. *See id.* at 539.

This argument is flawed. *University Computing* itself rejected Softel's proffered measure of damages: it stated that such a measure usually was appropriate only where the defendant had destroyed the value of the secret. *See id.* at 535. Here, Dragon did not publish Softel's secrets, and therefore did not destroy their value to Softel, other than to the extent that Dragon itself used them.

Softel's second legal challenge to the calculation of the trade secret damages calls attention to the fact that its trade secret claim differs from its copyright claim in that the trade secret claim contains the additional element of secrecy. Without more, this is irrelevant: an element of liability does not, of its own force, generate damages.

We have recently stated that "[a]lthough the deference owed by an appellate court to a trial court's factual findings is a well established principle of law, in few areas of the law is this rule so generously applied as it is in the field of damages." *Vermont Microsystems, Inc. v. Autodesk, Inc.*, 88 F.3d 142, 151 (2d Cir. 1996) (citations omitted). Given this deference, and the fact that Softel has failed to establish that the district court miscalculated its trade secret damages, we affirm the district court's calculation, except insofar as it may be affected by our limited remand of the trade secret claim, above at section II(C)(2).

D. Reverse Palming Off

At trial, Softel also claimed that Dragon's actions violated §

43(a) of the Lanham Act, 15 U.S.C. § 1125(a). Softel claims that Dragon is guilty of "reverse palming off" because it failed to credit Softel when it did the following acts: demonstrated a program that incorporated Softel routines at an International Interactive Communications Society ("IICS") meeting; sent letters to the Kurta Corporation soliciting a co-marketing arrangement for several programs that included Softel code; and started a division within their company called Dragon Expert Systems and marketed it as capable of creating interactive programming.

The district court rejected these claims. *See Softel II* at C.L. pars. 35-40. It found that Fiondella had not written the code underlying the program demonstrated at the IICS meeting, or, if he had, the contribution of his code was de minimis. *See id.* at C.L. pars. 37-38 & n.3. It also found that the letters written by Dragon "merely state that Dragon has the present ability to produce interactive computer programs. They do not make any claim as to how Dragon gained the ability to produce such programs. Id. at C.L. par. 40.

This Court has stated that a plaintiff alleging reverse palming off under the Lanham Act must prove the following: "(1) that the work at issue originated with the plaintiff; (2) that origin of the work was falsely designated by the defendant; (3) that the false designation of origin was likely to cause consumer confusion; and (4) that the plaintiff was harmed by the defendant's false designation of origin." *Lipton v. Nature Co.*, 71 F.3d 464, 473 (2d Cir. 1995) (citing *Waldman Publ'g Corp. v. Landoll, Inc.*, 43 F.3d 775, 781-85 (2d Cir. 1994)). We have also stated that the plaintiff is required to prove that "the defendant misrepresented an inherent quality or characteristic of the defendant's product." *National Ass'n of Pharm. Mfrs. v. Ayerst Lab.*, 850 F.2d 904, 917 (2d Cir. 1988) (internal quotation marks omitted).

We have reviewed the record and find sufficient evidence there to sustain the district court's finding that even if the program exhibited by Dragon at the IICS meeting did use Fiondella's image retrieval routines, these routines did not form an "inherent quality or characteristic" of the program for the purposes of § 43(a). Softel challenges this evidence: it argues that the court never examined the program that was actually displayed at the meeting because, Softel claims, the version of the program submitted by Dragon in discovery was different than the one displayed at the meeting. Softel made this same objection at trial and the district court received the program subject to the condition that the defendant connect it to the program shown at the meeting. On this appeal, however, Softel does not

argue that receiving the evidence subject to connection was illegitimate, or that the program was not in fact subsequently connected. Therefore, Softel has waived its objections to the version of the program examined by the district court. The court's finding was not clearly erroneous; we affirm it.

We also affirm the district court's finding that Dragon's letters regarding Dragon Expert Systems do not violate § 43(a) because they merely asserted a present ability to produce certain programs. *See Softel II* at C.L. pars. 39-40. There was no "false designation of origin." *Lipton,* 71 F.3d at 473. This Court has stated that "as a matter of law, a false copyright notice alone cannot constitute a false designation of origin within the meaning of a § 43(a) of the Lanham Act." *EFS Mktg., Inc. v. Russ Berrie & Co.,* 76 F.3d 487, 492 (2d Cir. 1996) (quoting *Lipton,* 71 F.3d at 473); *see also Kregos v. Associated Press,* 937 F.2d 700, 711 (2d Cir. 1991). Without a requirement of "some additional misrepresentation of originality beyond mere use of a copyright symbol, [plaintiffs] could convert all improper copyright claims into Lanham Act violations." EFS, 76 F.3d at 492 (citing *Lipton,* 71 F.3d at 473; *Kregos,* 937 F.2d at 71 1). Here, there was not even a misleading use of the copyright symbol. Therefore, Softel has failed to show this "additional misrepresentation of originality."

E. Joint Liability of Dragon's President

At trial, Softel sought to establish that Hodge, Dragon's president, was jointly liable for Dragon's copyright infringement. Dragon moved at the close of Softel's case for dismissal of the claims against Hodge, on the ground of insufficient evidence. The district court granted this motion, on the ground that Softel had not produced evidence sufficient to establish a claim of contributory or vicarious liability.

The district court stated that it was dismissing Softel's claim against Hodge pursuant to Fed. R. Civ. P. 50(a), under a directed verdict standard. However, Rule 50(a) relates to dismissals in jury trials, and this was a bench trial. At the time of this trial, in April 1991, dismissals in bench trials "on the ground that upon the facts and the law the plaintiff had not shown any right to relief" were handled under Rule 41(b) of the Federal Rules of Civil Procedure. 9 Charles Alan Wright & Arthur R. Miller, *Federal Practice and Procedure* § 2371 (1995). The substantive provisions of this rule were moved to Fed. R. Civ. P. 52(c) shortly afterwards, in December 1991. *See* 9A *id.* § 2573. 1, at 493 n. I (amendment effective Dec. 1, I991).

Softel argues that we should take the trial court at its word and test its dismissal of this claim by the then-Rule 50(a) standard, i.e., whether, drawing every inference and making all credibility assessments in favor of Softel, Softel had presented sufficient evidence to support a verdict. Dragon argues that we should not review the trial court in this manner since the court in a bench trial has the power to make its own assessments of the evidence and probably did so here. We agree with Softel that the court made no findings but dismissed the case against Hodge by holding as a matter of law that Softel could not recover under any view of the evidence presented.

However, this does not avail Softel because we also agree with the district court that, even drawing every inference in favor of Softel, Softel had at the close of its case failed to bring forward sufficient evidence to sustain its claims against Hodge. Therefore, no findings were necessary; indeed, they would have been an exercise in futility. To establish contributory infringement, Softel was required to show that Hodge "authorized the [infringing] use." *Sony Corp. v. Universal City Studios, Inc.*, 464 U.S. 417, 437 (1984). Softel points to no such showing prior to the district court's ruling, and offers no such evidence on appeal. To establish vicarious liability, Softel was required to show that Hodge had a "right and ability to supervise [that] coalesced with an obvious and direct financial interest in the exploitation of copyrighted materials." *Shapiro, Bernstein & Co. v. H.L. Green Co.*, 316 F.2d 304, 307 (2d Cir. 1963). The only evidence that Softel adduced prior to the court's ruling relating to the issue of Hodge's supervisory capacities and financial interests was that Hodge was the president of Dragon and a shareholder. [12] The evidence is too attenuated to establish a sufficiently "direct" financial interest in the exploitation of copyrighted materials. *Cf. id.* at 308 (finding appellee vicariously liable because, *inter alia*, it received 10%-12% of the sales of the infringing materials).

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[12] Softel asserts that Dragon had only five employees, apparently in support of a theory that any president of a five-person corporation would have the requisite control and financial interest to establish vicarious liability. In support of this fact, Softel cites two documents in the Appendix on this appeal. First, it cites Judge Cannella's findings in *Softel II*, but these findings do not consider the number of employees at Dragon. Second, it cites a Dragon payroll report that does appear to indicate only five employees. Softel neglects to mention that this payroll report was entered into evidence more than four years after the ruling at issue here, in the damages phase of the trial, before a different judge. We therefore decline to consider it.

Therefore, the district court properly dismissed the claims against defendant Hodge

III. CONCLUSION

The district court's dismissal of Softel's claims of non-literal infringement and trade secret misappropriation are vacated and remanded for further consideration consistent with this opinion. In all other respects, the district court's rulings are affirmed.

UNITED STATES COURT OF APPEALS
FOR THE SECOND CIRCUIT
UNITED STATES COURT HOUSE
40 FOLEY SQUARE
NEW YORK 10007

GEORGE LANGE III
CLERK

At a stated term of the United States Court of Appeals for the Second Circuit, held at the United States Courthouse, Foley Square, in the City of New York, on the 16th day of September one thousand nine hundred and ninety-seven.

United States Court of Appeals
Filed **Sep 16 1997**
George Lange III, Clerk
SECOND CIRCUIT

Softel, Inc
Plaintiff-Appellant,
-v-
Dkt No: 95-9151

Dragon Med. Sci. Com

Defendants-Appellees.

A petition for rehearing containing a suggestion that the action be reheard in banc having been filed herein by the appellant Softel, Inc.

Upon consideration by the panel that decided the appeal, it is ordered that said petition for rehearing is **DENIED**.

It is further noted that the suggestion for rehearing in banc has been transmitted to the judges for the court in regular active service and to any other judge that heard the appeal and that no such judge has requested that a vote be taken thereon.

FOR THE COURT

GEORGE LANGE III, Clerk

By: /s/
Beth J. Meador,
Administrative Attorney

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CHAPTER 1 — SUBJECT MATTER AND SCOPE OF COPYRIGHT

17 U.S.C. § 101. Definitions

Except as otherwise provided in this title, as used in this title, the following terms and their variant forms mean the following:

An "anonymous work" is a work on the copies or phonorecords of which no natural person is identified as author.

. . . .

"Audiovisual works" are works that consist of a series of related images which are intrinsically intended to be shown by the use of machines or devices such as projectors, viewers, or, electronic equipment, together with accompanying sounds, if any, regardless of the nature of the material objects, such as films or tapes, in which the works are embodied.

. . . .

The "best edition" of a work is the edition, published in the United States at any time before the date of deposit, that the Library of Congress determines to be most suitable for its purposes.

A person's "children" are that person's immediate offspring, whether legitimate or not, and any children legally adopted by that person.

A "collective work" is a work, such as a periodical issue, anthology, or encyclopedia, in which a number of contributions, constituting separate and independent works in themselves, are assembled into a collective whole.

A "compilation" is a work formed by the collection and assembling of preexisting materials or of data that are selected, coordinated, or arranged in such a way that the resulting work as a whole constitutes an original work of authorship. The term "compilation" includes collective works.

"Copies" are material objects, other than phonorecords, in which a work is fixed by any method now known or later developed, and from which the work can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device. The term "copies" includes the material object, other than a phonorecord, in which the work is first fixed.

"Copyright owner", with respect to any one of the exclusive rights comprised in a copyright, refers to the owner of that particular right.

A work is "created" when it is fixed in a copy or phonorecord for the first time; where a work is prepared over a period of time, the portion of it that has been fixed at any particular time constitutes the work as of that time, and where the work has been prepared in different versions, each version constitutes a separate work.

A "derivative work" is a work based upon one or more preexisting works, such as a translation, musical arrangement, dramatization, fictionalization, motion picture version, sound recording, art reproduction, abridgment, condensation, or any other form in which a work may be recast, transformed, or adapted. A work consisting of editorial revisions, annotations, elaborations, or other modifications which, as a whole, represent an original work of authorship, is a "derivative work".

. A "device", "machine", or "process" is one now. known or later developed.

To "display" a work means to show a copy of it, either directly or by means of a film, slide, television image, or any other device or process or, in the case of a motion picture or other audiovisual work, to show individual images nonsequentially.

A work is "fixed" in a tangible medium of expression when its embodiment in a copy or phonorecord, by or under the authority of the author, is sufficiently permanent or stable to permit it to be perceived, reproduced, or otherwise communicated for a period of more than transitory duration. A work consisting of sounds, images, or both, that are being transmitted, is "fixed" for purposes of this title if a fixation of the work is being made simultaneously with its transmission.

The terms "including" and "such as" are illustrative and not limitative.

A "joint work" is a work prepared by two or more authors with the intention that their contributions be merged into inseparable or interdependent parts of a unitary whole.

"Literary works" are works, other than audiovisual works, expressed in words, numbers, or other verbal or numerical symbols or indicia, regardless of the nature of the material objects, such as books, periodicals, manuscripts, phonorecords, film, tapes, disks, or cards, in which they are embodied.

"Motion pictures" are audiovisual works consisting of a series of related images which, when shown in succession, impart an

impression of motion, together with accompanying sounds, if any.

To "perform" a work means to recite, render, play, dance, or act it, either directly or by means of any device or process or, in the case of a motion picture or other audiovisual work, to show its images in any sequence or to make the sounds accompanying it audible.

"Phonorecords" are material objects in which sounds, other than those accompanying a motion picture or other audiovisual work, are fixed by any method now known or later developed, and from which the sounds can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device. The term "phonorecords" includes the material object in which the sounds are first fixed.

"Pictorial, graphic, and sculptural works" include two-dimensional and three-dimensional works of fine, graphic, and applied art, photographs, prints and art reproductions, maps, globes, charts, technical drawings, diagrams, and models. Such works shall include works of artistic craftsmanship insofar as their form but not their mechanical or utilitarian aspects are concerned; the design of a useful article, as defined in this section, shall be considered a pictorial, graphic, or sculptural work only if, and only to the extent that, such design incorporates pictorial, graphic, or sculptural features that can be identified separately from, and are capable of existing independently of, the utilitarian aspects of the article.

A "pseudonymous work" is a work on the copies or phonorecords of which the author is identified under a fictitious name.

"Publication" is the distribution of copies or phonorecords of a work to the public by sale or other transfer of ownership, or by rental, lease, or lending. The offering to distribute copies or phonorecords to a group of persons for purposes of further distribution, public performance, or public display, constitutes publication. A public performance or display of a work does not of itself constitute publication.

"Registration", for purposes of sections 205(c)(2), 405, 506, 410(d), 411, 412, and 506(e), means a registration of a claim in the original or the renewed and extended term of copyright.

. . . .

"Sound recordings" are works that result from the fixation of a series of musical, spoken, or other sounds, but not including the sounds accompanying a motion picture or other audiovisual work,

regardless of the nature of the material objects, such as disks, tapes, or other phonorecords, in which they are embodied.

"State" includes the District of Columbia and the Commonwealth of Puerto Rico, and any territories to which this title is made applicable by an Act of Congress.

A "transfer of copyright ownership" is an assignment, mortgage,-exclusive license, or any other conveyance, alienation, or hypothecation of a copyright or of any of the exclusive rights comprised in a copyright, whether or not it is limited in time or place of effect, but not including a nonexclusive license.

A "transmission program" is a body of material that, as an aggregate, has been produced for the sole purpose of transmission to the public in sequence and as a unit.

To "transmit" a performance or display is to communicate it by any device or process whereby images or sounds are received beyond the place from which they are sent.

The "United States", when used in a geographical sense, comprises the several States, the District of Columbia and the Commonwealth of Puerto Rico, and the organized territories under the jurisdiction of the United States Government.

A "useful article" is an article having an intrinsic utilitarian function that is not merely to portray the appearance of the article or to convey information. An article that is normally a part of a useful article is considered a "useful article".

The author's "widow" or "widower" is the author's surviving spouse under the law of the author's domicile at the time of his or her death, whether or not the spouse has later remarried.

. . . .

A "work of the United States Government" is a work prepared by an officer or employee of the United States Government as part of that person's official duties.

A "work made for hire" is--

(1) a work prepared by an employee within the scope of his or her employment; or

(2) a work specially ordered or commissioned for use as a contribution to a collective work, as a part of a motion picture or other audiovisual work, as a translation, as a supplementary work, as a compilation, as an instructional

text, as a test, as answer material for a test, or as an atlas, if the parties expressly agree in a written instrument signed by them that the work shall be considered a work made for hire. For the purpose of the foregoing sentence, a "supplementary work" is a work prepared for publication as a secondary adjunct to a work by another author for the purpose of introducing, concluding, illustrating, explaining, revising, commenting upon, or assisting in the use of the other work, such as forewords, afterwards, pictorial illustrations, maps, charts, tables, editorial notes, musical arrangements, answer material for tests, bibliographies, appendixes, and indexes, and an "instructional text" is a literary, pictorial, or graphic work prepared for publication and with the purpose of use in systematic instructional activities.

A "computer program" is a set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result.

17 U.S.C. § 102 Subject matter of copyright: In general

(a)Copyright protection subsists, in accordance with this title, in original works of authorship fixed in any tangible medium of expression now known or later developed, from which they can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device. Works of authorship include the following categories:

(1) literary works;

(2) musical works, including any accompanying words;

(3) dramatic works, including any accompanying music;

(4) pantomimes and choreographic works;

(5) pictorial, graphic, and sculptural works;

(6) motion pictures and other audiovisual works;

(7) sound recordings; and

(8) architectural works.

(b) In no case does copyright protection for an original work of authorship extend to any idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied in such work.

17 U.S.C. § 106. Exclusive rights in copyrighted works

Subject to sections 107 through 118, the owner of copyright under this title has the exclusive rights to do and to authorize any of the following:

(1) to reproduce the copyrighted work in copies or phonorecords;

(2) to prepare derivative works based upon the copyrighted work;

(3) to distribute copies or phonorecords of the copyrighted work to the public by sale or other transfer of ownership, or by rental, lease, or lending;

(4) in the case of literary, musical, dramatic, and choreographic works, pantomimes, and.motion pictures and other audiovisual works, to perform the copyrighted work publicly; and

(5) in the case of literary, musical, dramatic, and choreographic works, pantomimes, and pictorial, graphic, or sculptural works, including the individual images of a motion picture or other audiovisual work, to display the copyrighted work publicly.

CHAPTER 3-DURATION OF COPYRIGHT

17 U.S.C. § 301. Preemption with respect to other laws

(a) On and after January 1, 1978, all legal or equitable rights that are equivalent to any of the exclusive rights within the general scope of copyright as specified by section 106 in works of authorship that are fixed in a tangible medium of expression and come within the subject matter of copyright as specified by sections 102 and 103, whether created before or after that date and whether published or unpublished, are governed exclusively by this title. Thereafter, no person is entitled to any such right or equivalent right in any such work under the common law or statutes of any State.

(b) Nothing in this title annuls or limits any rights or remedies under the common law or statutes of any State with respect to—

(1) subject matter that does not come within the subject matter of copyright as specified by sections 102 and 103, including works of authorship not fixed in any tangible medium of expression; or

(2) any cause of action arising from undertakings commenced before January 1, 1978; or

(3) activities violating legal or equitable rights that are not equivalent to any of the exclusive rights within the general scope of copyright as specified by section 106.

(4) State and local landmarks, historic preservation, zoning, or building codes, relating to architectural works protected under section 102(a)(8)

(c) With respect to sound recordings fixed before February 15, 1972, any rights or remedies under the common law or statutes of any State shall not be annulled or limited by this title until February 15, 2047. The preemptive provisions of subsection (a) shall apply to any such rights and remedies pertaining to any cause of action arising from undertakings commenced on and after February 15, 2047. Notwithstanding the provisions of section 303, no sound recording fixed before February 15, 1972, shall be subject to copyright under this title before, on, or after February 15, 2047.

(d) Nothing in this title annuls or limits any rights or remedies under any other Federal statute.

. . . .

CHAPTER 4 NOTICE, DEPOSIT, AND REGISTRATION

17 U.S.C. § 410. Registration of claim and issuance of certificate

(a) When, after examination, the Register of Copyrights determines that, in accordance with the provisions of this title, the material deposited constitutes copyrightable subject matter and that the their legal and formal requirements of this title have been met, the register shall register the claim and issue to the applicant a certificate of registration under the seal of the Copyright Office. The certificate shall contain the information given in the application, together with the number and effective date of the registration.

(b) In any case in which the Register of Copyrights determines that, in accordance with the provisions of this title, the material deposited does not constitute copyrightable subject matter or that the claim is invalid for any other reason, the Register shall

refuse registration and shall notify the applicant in writing of the reasons for such refusal.

(c) In any judicial proceedings the certificate of a registration made before or within five years after first publication of the work shall constitute prima facie evidence of the validity of the copyright and of the facts stated in the certificate. The evidentiary weight to be accorded the certificate of a registration made thereafter shall be within the discretion of the court.

(d) The effective date of a copyright registration is the day on which an application, deposit, and fee, which are later determined by the Register of Copyrights or by a court of competent jurisdiction to be acceptable for registration, have all been received in the copyright Office.

CHAPTER 5 - INFRINGEMENT AND REMEDIES

17 U.S.C. § 504 Remedies for infringement: Damages and profits

(a) In General.-Except as otherwise provided by this title, an infringer of copyright is liable for either-

(1) the copyright owner's actual damages and any additional profits of the infringer, as provided by subsection (b) ; or

(2) statutory damages, as provided by subsection (c).

(b) Actual Damages and Profits.-The copyright owner is entitled to recover the actual damages suffered by him or her as a result of the infringement, and any profits of the infringer that are attributable to the infringement and are not taken into account in computing the actual damages. In establishing the infringer's profits, the copyright owner is required to present proof only of the infringer's gross revenue, and the infringer is required to prove his or ter deductible expenses and the elements of profit attributable to Factors other than the copyrighted work.

(c) Statutory Damages.-

(1) Except as provided by clause (2) of this subsection, the copyright owner may elect, at any time before final judgment is rendered, to recover, instead of actual damages and profits, an award of statutory damages for all infringements involved in the action, with respect to any one work, for which any one in-

fringer is liable individually, or for which any two, or more infringers are liable jointly and severally, in a sum of not less than $500 or more than $20,000 as the court considers just. For the purposes of this subsection, all the parts of a compilation or derivative work constitute one work.

(2) In a case where the copyright owner sustains the burden of proving, and the court finds, that infringement was committed willfully, the court in its discretion may increase the award of statutory damages to a sum of not more than $100,000. In a case where the infringer sustains the burden of proving, and the court finds, that such infringer was not aware and had no reason to believe that his or her acts constituted an infringement of copyright, the court in its discretion may reduce the award of statutory damages to a sum of not less than $200. The court shall remit statutory damages in any case where an infringer believed and had reasonable grounds for believing that his or her use of the copyrighted work was a fair use under section 107, if the infringer was: (i) an employee or agent of a nonprofit educational institution, library, or archives acting within the scope of his or her employment who, or such institution, library, or archives itself, which infringed by reproducing the work in copies or phonorecords; or (ii) a public broadcasting entity which or a person who, as a regular part of the nonprofit activities of a public broadcasting entity (as defined in subsection (g) of section 118) infringed by performing a published nondramatic literary work or by reproducing a transmission program embodying a performance of such a work.

There was a second review by the NIH --

Q. Before we come to that, as of that point there was a recommendation that involved a retraction of three or four papers, is that correct?

A. That's correct.

Q. That, in turn, led to a further investigation involving the NIH?

A. That is correct.

Q. What did that investigation involve?

A. That investigation focused particularly on one study where the -- although all the actual experiments had been done, some of the information for blood flow in the heart which is measured with a radioactive material had not been done, and yet the results had been reported by me as if they had.

They also did a review of all of the papers that had been generated by me from the laboratory and recommended as far as I was concerned that several of the papers appeared to be published on incomplete or fraudulent data and that they should be retracted.

It was Dr. Bronwald's decision, and I agreed, that not only those papers should be retracted, but because of that, any papers for which there was not a full, complete

set of raw data and could not stand a careful scrutiny, should be retracted. That, in fact, is what happened."

Q. Did that include papers where the data simply had not been retained?

A. It included two types of papers; one in which the data, the raw data, did not exist and yet I had published the conclusions of a study as though it had, and another set of papers for which the raw data had not been retained. There was a third issue which was not really related to fraudulence, per se, or to retention of data, but the NIH disagreed with the use of a single experiment in multiple papers and felt that that made them statistically invalid, and those were also retracted.

The papers for which there was a complete set of raw data were not retracted.

Q. Without detracting from anything you related, it was your understanding that in the situation where data for an experiment was used in more than one paper, that was acceptable in the lab in which you were employed?

A. It was acceptable and there was actually a procedure for several of the people working in the lab, but under this kind of scrutiny it certainly was not going to stand up to a rigorous test.

Q. Did you agree with the recommendations of the hospital review committee and those of the NIH?

A. I did. It was my feeling that although I had done a great deal of work over that period of time and#-, in fact, all the experiments themselves could be accounted for, that there was no way that those papers could stay in print, and I -- although I was distressed that what was probably some valid work was being thrown away, I agreed that it should be.

Q. Did those investigations, in turn, lead to a reexamination at Emory?

A. Yes.

When the NIH published their report, Emory did a similar analysis. They requested raw data notebooks from me and also from a number of people with whom I had worked A. while at Emory although I didn't really do much research there. They reached the same conclusion, that papers for which there were no -- not a full set of data or papers where there was any consideration that there was possible fraudulence should be removed from press. There were a number of papers for which my colleagues had a full set of raw data and they argued that those papers be retained, and, to my knowledge, they are still in the press.

Q. You mentioned earlier that at the beginning of the Harvard review there began to be articles in the popular press.

A. Yes, that's true.

the computer and I don't remember exactly which one in this case but one of the examples of source code on the computer.

Q. Apart from the image retrieval routines is there anything else in Defendant's Exhibit Y that you did not personally write?

A. Well, there also a function related to the images, it's the clear screen function called PUTBLOCK which I didn't write.

There is also a timer routine at line 21000 that was used to replace a simpler function. This was I think developed for Kaposi's or Melanoma and I don't know whether the names of the variables are the same but this is not my code.

But the balance of Defendant's Exhibit Y is your code?

A. Yes.

Did you link in certain code that you found on the computer?

A. I linked in I think virtually all of the object modules that I found.

Q. And You linked, . them in irrespective of whether they were to be used in HEATLAB?

A. I didn't exactly know what each of their functions was, so, yes.

Q. Let me direct your attention if I may to the code

at line 2000. That's a routine LOAD PIX TO BUFFER?

A. Yes.

Q. And is certain code from what you found included at that line?

A. Yes.

Q. How did you physically come to include that code?

A. I looked over several examples -- there were some minor differences in the names of the variables -- and selected one of them that could be used for what I thought were the complete routines to retrieve the Videogram 2.0 images, and looked at the code and then typed in as at the line number here, typed in the code pretty much exactly as I saw it.

Would you explain mechanically what you mean by typed in?

A. I looked at an example of the other code, I think on a piece of paper, probably on a printout, and in the editor that I was using to create the program code. There are a few little changes here but think this is from line 2000 to 2200. I pretty much typed in as I saw it on the paper.

Let's focus on the changes. You were shown or during Mr. Fiondella's examination he was shown Plaintiff's Exhibit 34 AA, which involves a comparison of code line 2000 for the LOAD PIX TO BUFFER routine. And the third page of

A. Yes.
Q. It included data and included computer operating code.
A. That's correct.
I'm talking about tfte operating code. Did anybody beside yourself place the operating code on the disk that was delivered to the client?
A. No.
Q. Did you utilize any of Softel's code in preparing the March 10, 1986 version of HAIRY CELL?
A. The image retrieval routines, which I've discussed before, which were in the program in January as well as some sections of code related to the videodisc, which have a mixed origin, and the sections of code from the touch screen were in the version that I showed in Zurich in January and they were also in the version in March.
Let's go back to the January version. Did you put them in that version?
A. Yes.
Q. From the very outset you used that Softel code that you just described, correct?
A. Well the outset of the program
Q. Hairy Cell program.
A. The outset of the programming had a great deal of design -- the additional code. At some point in time,

getting close to the deadline when I needed to have the program run and not just exist on the computer, thatfs when I added these sections of code in order to be able to test it sufficiently before going to Zurich.

And the code you've described as the code that makes – gives the user the opportunity to make choices from the menus, correct?

A. The touch screen access code.

Q. But without that the touch screen wouldn't work, isn't that so?

A. Without touch screen access code the touch screen would not function.

Q. Likewise, without the Softel code to bring the picture up you wouldn't see any pictures, isn't that right?

A. That's the purpose of the video graph -- excuse me, the Videogram retrieval routines, is to bring a Videogram 2.0 graphic up on the screen.

Q. HAIRY CELL as we saw has quite a lot-of those pictures, isn't that so?

A. HAIRY CELL has quite a few graphics, yes.

Q. And also quite a few of the touch screen menus?

A. It has a number of menus, that's correct.

Q. Every time those appeared on the screen you used the Softel software in that January, '86 version?

A. Well, the software exists one time, every time

the touch screen is accessed, is what you are talking about.
Q. Yes.
A. But it is not -- it is one set of code in the original source code and in the executable.
Q. I understand. You keep going back to it and keep using it each time. It works, that's the only way you get the picture up, right?
A. The code functions to communicate with the touch screen and the videodisk player, that's true. So every time
Q. If it wasn't there it wouldn't work?
A. That's correct.
Q. And then when you finished up the version of March 10, 1986 the same code was still in there?
A. I believe so.
Q. But don't you know so?
A. I don't know because we don't have a copy of the source code but I'm -- there was so little time in between the January meeting and the March meeting I think I was only able to make a few of the substantive content changes by that time.
Q. Is it possible to make these disks without having the source code?
A. No, I mean now having the source code.
Q. I mean back then, could you do it without the source code?

A. Yes.

Q. You actually could prepare those disks, the HAIRY CELL Leukemia without having source code?

A. If the program as shown in Zurich, in January, if that set of disks, if nothing was to happen to it it would be unnecessary to have any source code between January and March.

Q. Please, Mr. Darsee, when you prepared the January disk and you put that code in you had source code, isn t that so?

A. That's correct.

Q.. And that source code included Softel's routines, isn't that so?

A. It included the routines as I've described them.

Q. And that source code, what happened to it?

A. I don't know. There is yet another evolution of that program, so that source code, which doesn't exist in the final version of the program, was duplicated -- excuse me, was replaced and many times there were sections that were changed in order to implement some of the new routines' that needed to be in the program.

Q. And you did not preserve the source code?

A. No, not the source code for the entire project. There are many elements of it that are in the final source code, however.

Q. Do you know if he said that in a signed article in Nature publication?

A. I don't know. I don't believe I read the article.

MR. SEYMOUR: Your Honor, I don't want to belabor this issue but I would like to have the record reflect the one important aspect of what the witness was referring to. Let me ask him a preliminary question and then I will make my offer.

Q. As a result of the disclosures of your activities, Mr. Darsee, was a Federal investigation initiated?

A. There was an investigation by the National Institutes of Health if that's what you are referring to.

Q. And was that because much of the work you had done had been with Federal funds?

A. It was related to the fact that one of the studies was a multicenter study that had been sponsored by the NIH.

Q. Were there subsequently there congressional hearings questioning the effectiveness of oversight of NIH-sponsored research?

A. I don't know. There may have been.

Q. Isn't it a fact than that that entire set of hearings was triggered specifically by your conduct?

MR. SEYMOUR: Your Honor, at this time, and I will pass the subject by, I would like to have deemed marked for identification the official publication of the hearings of the Task Force on Science, Policy of the Committee n Science and Technology of the House of Representatives of the 99th Congress, Second Session, held on May 14, 1986. I would like to have that deemed marked as Plaintiff-s Exhibit 130 A. And specifically I would like to introduce into evidence Plaintiff's Exhibit 130 which is the summary of the issues in that hearing that reflect the Federal interest that was triggered by Mr. Darsee's activities.

MR. SCHNEIDER: May I understand the purpose of the offer, is it for the truth of the contents or judicial notice of a legislative fact?

MR. SEYMOUR: Judicial notice of a legislative fact that Mr. Darsee's conduct specifically triggered a congressional inquiry into it and I think there are also some direct references to admissions by Mr. Darsee in the body of it. To the extent they are admissions I offer it as admissions. To the extent it refers to other matters, only as to notice.

MR. SCHNEIDER: I have no objection to it being received for the limited purpose of documenting the hearing. But as to its contents I would have to study it in further

Based upon the tests that you performed did you form an opinion as to whether the ASSEMBLY language routines from the copyright collection were present in the code of HAIRY CELL-U.S.?

A. The opinion I formed is that they were not there.

Q. Let's turn to HAIRY CELL Roche. Am I correct that with respect to HAIRY CELL Roche you did not have available to you source code?

A. That's correct.

Q. Did you make a request for it?

A. Yes, I did.

Q. It could not be provided, is that correct?

A. That's my understanding.

Q. Did you nontheless perform the test that you described on the executable code?

A. Yes. There HAIRY CELL Roche was the baseline that was used in Grosky's initial report. So there I had locations as well as my own work of different methods of identification and was able to identify and locate these routines as are indicated there, PUTBLOCK through MOVSEG.

Q. In fact, when you did the search of HAIRY CELL Roche did you find more than just those six routines present?

A. Well, I found the linked routines that were linked in as well. This again was the subject of Mr.

Grosky's report and in that report he identified the routines that were linked, and then there were additional addresses that were identified which it is my opinion would be routines that were only used.

Q. Which were the routines that were used in HAIRY CELL Roche as determined by you from the executable code?

A. It is my opinion that they were PUTBLOCK, FLOAD, MOVDWN, PUTROW2MEM, MOVSEG.

Q. Merely because an ASSEMBLY language routine is present does it therefore mean that it is used?

A. No. As I explained earlier the operation of linkage will in effect take the entire object library and link it into the executable, and then as part of the linking process the place where CALL is occurring in the source code of the BASIC has in effect a pointer or call that says go to that ASSEMBLY routine and come back as part of the normal processing of the executable.

The unused linked object modules that are in the executable, they exist there, but there is no reference to them so they could literally be taken out and no effect would occur on the program.

One of the experiments I did as part of the number of things that we did for consistency checks was I took entire libraries and linked them without creating an executable and I was able to produce an executable that had

the various routines that were in the object libraries.

Q. I want to return to --

MR. SEYMOUR: I beg your pardon, could I hear the last sentence again. I'm not sure I heard it.

MR. SCHNEIDER: May I have it read back.

(Record read)

A. If I can make a point. In terms of an executable it was an executable program. Whether it was a meaningful program, that wasn't the intent. It was just to produce this linking operation and produce an executable that had those routines.

Q. I would like to ask you a hypothetical question if I may.

Could one remove from the program routines that are present but not called and still have a functioning program?

A. Yes, it is my opinion you can do that.

Q. Let's turn next to line BACK PAIN. Did you perform the tests that you described on the executable code of BACK PAIN?

A. Yes, I did.

Q. What did you find when you performed that test?

A. I found from the combination of the executable tests as well as the test of the source the routines that I indicate there that were used. In addition, I found the

linked library in the executable, although a different number of routines was actually linked into the library.

Q. When you say a different number, was it a fewer number?

A. It was a fewer number than what I found in my work for HAIRY CELL Roche.

Q. And you found with respect to BACK PAIN that the six ASSEMBLY language routines were not only present but they were called in BACK PAIN?

A. Yes.

Q. And that signified by the Y's that we see?

A. Yes.

Q. Turning to the next line which is denominated BACK PAIN, EXPERT, what are you referring to there?

A. Well, as a second variation of BACK PAIN where a second program is utilized called EXPERT. And the two operate together in a chained fashion where one operates in BACK PAIN and then when one reaches a certain part of the program, the program transfers the control to EXPERT where in effect EXPERT is run as a second program.

Within BASIC you have the capability of chaining, where you go from one program, you can then run an second program and then return in a manner using the system command.

So for that situation you have a combination of

MR. SEYMOUR: There might be a further way to solve that problem, your Honor, if we could also include Mr. Defant's report then he would be here for cross-examination.

THE COURT: That I've already covered in the memorandum and I don't want to change my mind on that.

MR. SEYMOUR: I don't think your Honor has addressed the question about a rebuttal case.

THE COURT: I would not allow rebuttal

MR. SEYMOUR: Your would not allow rebuttal?

THE COURT: No, the memorandum indicates there will be no expert testimony unless your produce Grosky, that's the tenor of the memorandum.

MR. SEYMOUR: Unless we produce --

THE COURT: Grosky

My question is, is that something that was added on or was a surgical procedure done? That is, did you now take out one of the Halo procedures and put a Quick BASIC in or did you add the Quick BASIC onto the end so you had additional features?

A. No, I would say generally the post-litigation programs are written from scratch in their entirety. Not only the command set and all the things that we have discussed here, but they are rewritten. There is no question that they have no resemblance at any level to the earlier programs in terms of the KAPOSI. Similarities in structure like file usage, but once you went to Halo --

Q. With the greatest respect, Mr. Cain, I think you fell into the trap of partisanship. You slipped something in that was not responsive to my question that articulated the legal position of your client, and I don't think it was fair.

A. I'm sorry. What are you referring to? I am trying to be technically accurate in terms of the groupings of programs.

Q. I was asking you physically how that was done.

A. Okay. Physically how it is done is that it was not simple surgery of a single routine to accomplish a change in the program. We are talking about, if you look at

the command sets, which are a relationship to the routines -- we went from the early days of 15 commands in KAPOSI, of which one was a graphics routine, to in the post-litigation group programs approaching a dozen to perhaps 15 commands that now became the image recall routines.

There is one command called I think EGA still in one group of programs

Q. I am aware of all of that and we are going to spend a lot of time on that. But that is commands. Right now we are talking about hardware.

A. I realize that.

Q. In the greatest respect, would you confine yourself to the question?

A. Sure.

Q. Which was, was Quick BASIC added through a surgical procedure or was it added on to the end or was it done some other way? Just how was it done?

A. It was done in a new implementation. That is what I said.

Q. What?

A. It was done as a new implementation from scratch.

Q. Describe how that happened, as you visualize it. First of all, did you get somebody who knew nothing about this so that you had an absolutely clean slate? We are going to have to assume what the fact is. Let's assume that

whoever did that had been working at least on the programs in here. Is it a fair, common-sense deduction that whatever knowledge he had about what was in this source Code would carry over in some respect to whatever he put in here?

A. One can see an evolution that occurred from the blue column, what we call the prelitigation programs, into the post-litigation programs. I am trying to be accurate, because we are talking about things that are very complex.

...

Q. How about the use of external font files over the course of a four-year period with, say, more than half of the characters remaining the same? What would you say was the probability of that?

A. I don't really understand the question.

Q. you recall we talked earlier about the fact that there was some testimony here, not any claim of infringement, but there was some testimony here that the font files that were used in KAPOSI reappeared throughout the other programs and that by the end of the sequence in HEART COMMAND there were still something over half of the characters, at least in that TITLE2 font, where a witnessl, to wit, Mr. Fiondella, had testified that they were identical to the files that we began with at the beginning.

A. I was not able to confirm that.

Q. I understand.

A. Programmers as well as other knowledge workers utilize work they have done in the past as part of the way

that they do their things. So the probability of finding early work in the later work is something where there is some likelihood. As one evolves and one creates, the old is replaced by the new.

The debugging is a function of a number of things, in terms of when things were available, the complexity.

Q. The debugging, which I take is very heavy the first time around, once it is done, it's done, you don't have to repeat it as you use the same code for other clients?

A. There is a famous quote and I think it is attributed to a Mr. Lansky and that quote is: "there is always another bug." Even in Star Wars their problem is they recognize they will never get the bugs down to something less than a part of a percent. So in answer there is always going to be some maintenance and it is called software maintenance.

Q. Leaving aside that truism I think about all of life, the goal is to try to get as many of them as possible taken care of?

A. Sure.

Q. How about the ASSEMBLY language routine writing, did you include -- I thought I heard you talk about writing in BASIC. How about the ASSEMBLY language part of the Kaposi program?

A. There my understanding is since those routines were utilized in Videogram, they already existed as a library, so the form that they were in was already

completed. Perhaps with some Modification, some small alterations, but they already existed in the form of a library.

Q. Accepting that statement, how long would it have taken you to have created that library?

A. That library is I believe about 60 pages long. I would say that probably -- let me just think a second.

(Pause)

A. Not all of the library is used in the copyright collection programs.

Q. I understand that. I'm talking about creating it in the first instance.

A. But that was done for Videogram.

Q. I understand.

A. To create this program alone and I assume we are going back to doing everything from scratch--

Q. Let us have both of them.

A. If one was only using the routines utilized in Kaposi then one has to write the five or actually six routines, PUTBLOCK through GETSEG on my previous chart. Those routines there are probably something of the order of about 10 pages long, so that's about 40 man-days of programming using the same rule, although that may be somewhat pessimistic. But to give you the benefit of the doubt.

AFTERNOON SESSION

2:30 p.m.

(In in open court)

THE COURT: You may proceed.

MR. SEYMOUR: Thank you, your Honor.

The plaintiff calls Paul Fiondella.

PAUL FIONDELLA,

called as a witness by the Plaintiff,

having been duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. SEYMOUR:

Q. Mr. Fiondella, are you the president and sole stockholder and founder of Softel, Inc.?

A. Yes, I am.

Q. And when was Softel organized?

A. Softel was organized in 1981.

Q. And what were the circumstances that caused Softel to be organized then?

A. IBM announced that it would be producing a personal computer, that is to say a very small computer that could be put on a desk, for somewhere around $3000 and I at the time was a professional software engineer working for Bell Laboratories where we used computers that cost $300,000. And IBM had created a window of opportunity for people such as myself to get into the business of selling

software to a very, very wide range of people.
Q. And prior to that time, how long had you been engaged in computer programming?
A. I had been employed as a professional computer programmer for approximately 9 years by a number of different companies. I knew roughly 5 or 6 different languages and I had been an assistant to several people at New York Institute of Technology who were doing state of the art computer graphics research. I had a Masters degree in film and animation, so I was familiar with video technology design issues, needs of artists, imagery, et cetera.
Q. And did you have some plan in mind as to how you were going to proceed into the PC marketplace?
A. Yes. When the IBM PC came out it came out in such a way as it appeared to be a market of niches and the two most general niches were the text based software niche and the graphics software niche.
Q. The text based software niche would be things like word processors, data bases, spread sheets, utilities software. The graphics software niche was much smaller, and the graphics software niche required slightly different hardware. When you purchase the IBM PC it's sort of like a little bit like a car. You had certain options. You had to make a choice as to were you going to be with a black and white display that you could use for text work or even go

with a color display, and then the question is what were you going to use it for. So that graphics niche was much smaller, much less defined. In the graphics niche the limitations were essentially 4 colors and a fuzzier image and the text side. So you had to make a decision as to what you were going to do. My decision was that I saw the graphics marketplace as being a niche that would expand, and would do so rapidly, and that is the niche that I selected.

Q. And what opportunities did you see there for Softel?

A. Softel as a company, because I had the expertise in computer graphics and because I understood what you could do with the computer in terms of graphics, we had the opportunity to look at that little niche and see what ways we could expand it forward that would develop a market for our particular types of produces.

I made basically two decisions which influenced the course of the business. One was to go with more colors than 4. My competitors essentially were sticking to 4. colors and that was it. But from the point of view of design work, presentation, color presentations, slide shows, you really need more than 4 colors to do anything that is a representational type or artistic type of image.

Most of the 4-color niche was filled with business graphics products which would put a chart up, and

MR. SEYMOUR: I think if your Honor, when your Honor gets around to reading the cases on the damage question you will see that this business --

THE COURT: But I have: read some of them. I tried to prepare for the trial.

MR. SEYMOUR: Then you are familiar with that concept of good will, which is specifically a damages concept, and that is what I am trying to address here through this witness. And I think we covered it, your Honor.

THE COURT: All right., Let's move on.

Q. Did you at any time ever negotiate with anybody to sell your source code for the Image retrieval routines?

A. No.

Q. And why was that?

A. Because that was the most valuable asset in my company.

Q. Why was it the most valuable asset of your company?

A. Because a software company is a company that depends on its source code and that source code, once it gets out of my control into the hands of anyone else, can be used, in effect, to do everything I have done. In other words, all the effort thiat went into producing it would have to be contained in the price that was charged to that other

person and I no longer would have exclusive use of that source code. So the most fundamental, decision in my company was that we would not sell the source code. We would not disclose the source code to anyone. We never explained the source code to anyone. It was limited access to the source code in terms of people.

Q. And that in fact was exactly what happened with respect to the Hairy Cell Roche and the Low Back Pain program, that they became possible because the source code had gotten out of the bottle?

A. That is correct. Hairy Cell Roche was part of the judge's findings.

Q. The last question I have is this: over the lunch hour did you, at my request, confer with Professor DeFanti and review the copyright registration, Plaintiff Exhibit 34?

A. Yes.

Q. To identify those portions of that registration that reflect the image retrieval routines as defined by. Professor DeFanti -- that is, the steps from script to screen?

A. Yes.

Q. And can you tell us please how much of the total of this exhibit did you exclude as not being part of the image retrieval routines as so defined by Professor DeFanti?

A. I believe it was approximately 11 pages.

is in this package from the user's point of view?
A. Yes.
Q. And the license that you granted to Symantec, did you go to them or did they come to you?
A. They came to us.
Q. This is a license actually to use your source code, is that correct?
A. That is correct, yes. They had access to the source code.
Q. And did you put any restrictions on what they could do with the source code?
A. Yes, we put quite stringent restrictions on what they could do with the source code. They are only allowed to sell that product as part of their Norton Utilities package, not by itself, and they could not divulge the source code to anyone and, in fact, if they propose to develop a product similar to ours we put clean room requirements on them to make sure that they were not using the source code for any purpose except to maintain that product.
Q. Can You explain what you mean by "clean room requirements?"
A. If they were to develop a product similar to ours they would have had to do it with individuals who had had no contact with our source code and they would have to have a

procedure for documenting that very carefully to our satisfaction, and there are also locked-cabinet requirements. The source code had to be kept in a locked cabinet, secured.

Q. And are those requirements something that is the result of practices or experience in the industry?

A. Yes, they are.

Q. Can you explain the background for them and the reasons for them?

A. The reason for them is that to us, as a small developer, the source code is our single largest asset. It's the most valuable thing we have and their interest in it was being able to make sure to maintain the product but we wanted to make certain that that source code could not be used for any other purpose. But that is the technology and that represents our total investment and it's really all we have in a certain sense.

Q. Did there come a time when Symantec asked if they could upgrade your portion of the product?

A. Yes, they did.

Q. And did you enter into further negotiations with them?

A. We did enter into further negotiations and we did license an upgrade to them.

Q. And did they pay an additional fee for that?

Plaintiff's Exhibit 121-Excerpt

Table 2

	INTRO .EXE	EXPERT .EXE	CASES .EXE	LIBRARY .EXE	RESEARCH .EXE
setwindow	b93:000	e66:000	d91:000	cb9:000	1329:000
getwindow	b93:091	e66:091	d91:091	cb9:091	1329:091
setorigin	b93:0b8	e66:0b8	d91:0b8	cb9:0b8	1329:0b8
getorigin	b93:0e9	e66:0e9	d9l:0e9	cb9:0e9	1329:0e9
getpoint	b93:100	e66:100	d91:100	cb9:100	1329:100
putpoint	b93:176	e66:176	d91:176	cb9:176	1329:176
flippoint	b93:1fa	e66:1fa	d91:1fa	cb9:1fa	1329:1fa
putblock	b93:2a0	e66:2a0	d9l:2a0	cb9:2a0	1329:2a0
qetrow	b93:440	e66:440	d91:440	cb9:440	1329:440
putrow	b93:660		d91:660	cb9:660	1329:660
layrow	b93:681		d91:681	cb9:681	1329:681
setrow	b93:6b3		d9l:6b3	cb9:6b3	1329:6b3
putrow2mem	b93:9f0	e66:660	d91:9f0	cb9:9f0	1329:9f0
layrow2mem	b93:al4	e66:684	d91:a14	cb9:al4	1329:a14
setrow2mem	b93:a49	e66:6b9	d91:a49	cb9:a49	1329:a49
movseg	c6b:000	f05:000	e69:000	d91:000	1401:000
movup	c6b:01e	f05:01e	e69:01e	d91:01e	1401:01e
movdwn	c6b:039	f051,039	e69:039	d91:039	1401:039
pack	c6b:058	f05:058	e69:058	d91:058	1401:058
unpack	c6b:07b	f05:07b	e69:07b	d91:07b	1401:07b
getseq	c6b:09e	f05:09e	e69:09e	d91:09e	1401:09e
pacseg	c6b:0cl	f05:0cl	e69:0cl	d9l:0cl	1401:0cl
mask	c6b:0dd	f05:0dd	e69:0dd	d9l:0dd	1401 0dd
shift	c6b:0f3	f05:0f3	e69:0f3	d91:0f3	1401:0f3
scrdmp	c6b:10b	f05:10b	e9:10b	d91:10b	1401:10b
trybrush	c6b:120		e69:120	d91:120	1401:120

untry	c6b:2e6		e69:2e6	d9l:2e6	1401:2e6
baslib	c9e:005,	f29:00?	e9c:005,	dc4:005	1434:005
fsave	112e:000	f17:000	1321:000	123b:000	18c4:000
fload	112e:077	f17:077	1321:077	123b:077	18c4:077
getspace	113d:000	f26:000	1330:000	124a-000	18d3:000
data	1141:000	13d8:000	1334:000	124e:000	18d7:000

Table 2: offsets of SOFTEL library routines in ROCHE Hairy Cell executable

PLAINTIFF'S EXHIBIT D-10

SUMMARY OF SOFTEL DEVELOPMENT COSTS

Development Costs July 1, 1983 - September 1984

A. P. Fiondella (1983: 7 days, 12-16 hrs/day @ 70%, or 68 hrs/week: 1984: 6 days/weeks, 12-16 hrs/day @ 80% Jan-April; 60% May-June; 40% July - Sept., @ $50/hr) $189,450.

B. Assembly Language Programmer (A. Grotsky) 20,400.

C. Softel Employees

1/3 of $4,535 = $1,511
1/3 of $4,227 = $1,409
1/10 of $1,498 = $ 149
$ 3,069 3,069

D. Equipment Purchased

1983

Check No.	Date	Vendor	Item	Amount
394	8/6	Computerland	IBM PC	$2,604.00
399	8/18	Computer Innovations	Compiler	596.00
406	9/8	Great Lakes Computer	Hard disk	1,025.00
413	9/16	Stoney Clove Comp Ctr	Computer supplies	76.53
420	10/11	Computerland	Comp deposit	500.00
436	10/27	Stoney Clove Comp Ctr	Repairs	105.00
447	11/10	Computerland	BASIC dev. kit	140.73
459	11/21	Datadyne Co.	Drive	215.42
462	11/21	Bibliophiles	Memory Board	570.00
467	12/12	Discortex	Color transformer	206.15
471	12/13	Manhattan Electronics	Cables	43.30
473	12/19	Syncom	Disk holders	34.95
475	12/20	Technisphere	Monitor	751.00
488	1/30	Discortex	Cables	95.00
490	1/30	Computerland	IBM PC JR	846.65
491	12/20	Technisphere	Cables	84.43
				$7,894.16

1984
Equipment and Supplies $14,987.00

TOTAL EQUIPMENT: 22,881.16

E. Expenses (apportioned) 2,968.50

TOTAL: $238,768.50

Plaintiff's Exhibit 130A

Science Policy Study — Hearing Volume 22

RESEARCH AND PUBLICATIONS PRACTICES

HEARING

before the

TASK FORCE ON SCIENCE POLICY

of the

COMMITTEE ON

SCIENCE AND TECHNOLOGY

HOUSE OF REPRESENTATIVES

NINETY-NINTH CONGRESS

SECOND SESSION

May 14, 1986

[No. 165]

Printed for the use of the
Committee on Science and Technology

Plaintiff's Exhibit 130A

Department of Health & Human Services

Public Health Services

National Institutes of Health

Date: July 8, 1983

From: Associate Director for Extramural Research and Training

Subject: Investigation of Alleged Misconduct at Brigham and Women's Hospital and Proposed Actions — DECISION

To: Director, NIH

SUMMARY

An investigation by the National Heart, Lung and Blood Institute (NHLBI) has confirmed that research data were fabricated in the course of an NHLBI-funded contract to the Cardiac Research Laboratory at the Brigham and Women's Hospital, Harvard Medical School. The contract was one of five awards funding a cooperative study entitled "Animal Models for use in the Assessment of Therapy to Protect Ischemic Myocardium" (AMPIM). The data falsification were judged to be acts of a single individual, Dr. John B. Darsee, who was supported by an individual National Research Service Award (post-doctoral fellowship) from the NHLBI.

A panel of senior non-Federal scientists, convened by the NHLBI, investigated the allegations of data falsification. Following receipt of the Panel's report, the national Institutes of Health (NIH) received additional information suggesting that the falsifications occurring in the course of the contract -funded research were not isolated events but part of a pattern involving Dr. Darsee's earlier research at Emory University. Thus a final assessment of the full significance of Dr. Darsee's actions cannot be made until the additional evidence is weighed and a second investigation, at\s recommended below, is completed. However, the findings at Harvard with respect to Dr. Darsee's actions are sufficiently serious to warrant the initiation of a debarment proceeding for Dr. Darsee.

The Panel's recommendations regarding the incidents at Harvard are discussed in the body of this memorandum. The recommendations of a committee of senior NIH staff, which reviewed both the report and the comments of all principals, are as follows:

(1) That you ask the Secretary to initiate proceedings to debar John R. Darsee, M.D. from both financial assistance (grants and cooperative agreements) and contract funding for a period of ten years.